



**Authentic learning tasks  
– building a bridge from  
the classroom to the  
world**

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## Dragon Step Authentic Tasks

Dragon Step Authentic Tasks are designed to give learners engaging, real-life opportunities to develop and apply their skills in a context that is relevant to them. Children learn best through purposeful activity and real-world tasks are ideal for developing useful skills and knowledge. Using authentic tasks equips learners for life, building their ability to learn new skills and apply their subject knowledge more positively and creatively.

As teachers we all know that engaging learners is key to successful learning and progress but developing these activities is time consuming. Dragon Steps Authentic Tasks enable teachers to provide exciting and engaging activities for their learners and still have time for the more important parts of teaching, spending less time away from the children.

The new curriculum for Wales aims to promote high achievement and engage the interest of all learners to help them reach their potential, by making learning more experience-based, and by giving teachers the flexibility to deliver in more creative ways that suit the learners they teach. Dragon Step Authentic Tasks are developed with this goal in mind and are aligned to the six areas or learning and cross-curricular responsibilities for literacy, numeracy and digital competence.

The numeracy pathways identified for activities are aligned to the 'Curriculum for Wales: revised Areas of Learning for the FP and revised programmes of study for Key Stage 2'. The cross-curricular responsibility codes are from the coded framework for literacy and numeracy and the digital competency framework. A number of skills have been identified for each task. These are the skills most easily developed through an activity and it will be possible to develop other skills as well. The most relevant skills for your learners should be chosen as the focus for development and assessment. The tasks provide effective opportunities for formative assessment.

### Using the tasks

Dragon step Authentic Tasks are designed so that they can be picked up and used by the busy teacher to create powerfully effective learning opportunities for their learners. The example activities can be used to introduce the task or they can be used as the task. Activities can be made simpler for learners through supporting materials or by amending the tasks. For support with this please contact [Rachel@CullyEducation.co.uk](mailto:Rachel@CullyEducation.co.uk). Each activity has an extension task to challenge learners and developing their own versions of the activities will also result in more challenge for learners.



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# Roald Dahl's Birthday

To celebrate the 100<sup>th</sup> birthday of this great Welsh legend, the school invites parents and the community to a special birthday celebration at the school.

Attractions include a Roald Dahl themed numeracy walk, treasure hunt, story-tellers corner and exhibition stalls. The special day culminates in a spectacular Roald Dahl themed musical performance for the visitors. This task builds links with the community and has the potential for international links.

The tasks have been allocated to year groups in order to show alignment to the Curriculum for Wales: revised Areas of Learning for the FP and revised programmes of study for Key Stage 2. All tasks could be developed with any year group.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- + **Expressive arts**
- + Health and well-being
- + **Humanities**
- + **Languages, literacy and communication**
- + **Mathematics and numeracy**
- + **Science and technology.**

## Cross Curricular Responsibilities

### Literacy

**Oracy** – Developing and Presenting Information and Ideas

**Reading** – Locating, Selecting and Using Information, Responding to What has been Read

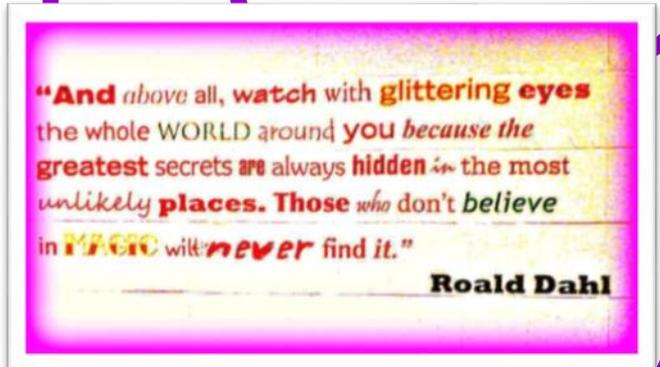
**Writing** – Organising Ideas and Information, Writing Accurately

### Numeracy

Numerical Reasoning, Using Number Skills, Using Measuring Skills, Using Data Skills

### Digital Competence

Citizenship, Interacting and Collaborating, Data and Computational Thinking





# Roald Dahl's Birthday

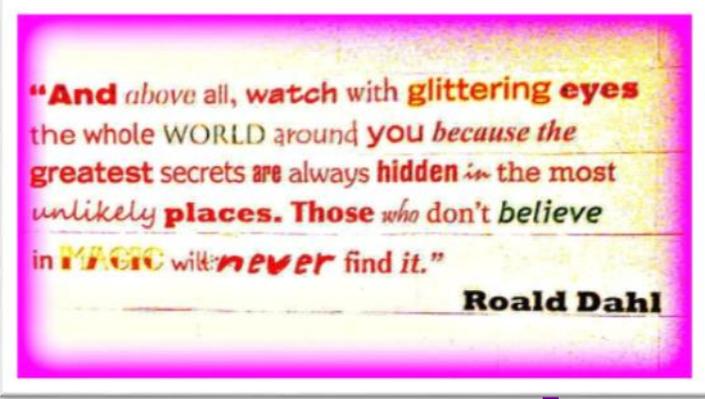
## Pre-teaching

- ✚ In preparation for the day, each class reads a Roald Dahl book ([suggested booklist](#)).
- ✚ Explain to the children that we are celebrating 100 years since the birth of Roald Dahl and so are going to hold a special party day that they will be organising.
- ✚ Remind them of previous special days and discuss the types of jobs that will need to be completed.
- ✚ Tasks can be allocated across the school or within the class.  
Year Groups given are only suggestions and the task can easily be adapted for other year groups.
- ✚ Hold a musical workshop day to inspire the performances.



## Make it Digital

Each task can either be enhanced through the use of technology in the development stage or for execution of the task.



**“And above all, watch with glittering eyes the whole WORLD around you because the greatest secrets are always hidden in the most unlikely places. Those who don't believe in MAGIC will never find it.”**  
**Roald Dahl**

## Developing the Tasks

- ✚ Research and plan activity areas.
- ✚ Once the day has been planned, the resources will need to be created and set up ready for the day.
- ✚ Both on the day and following on from the event, the day will need to be evaluated in terms of enjoyment, monetary gain and next steps.



# The Musical Workshop

## Whole School

This will be the main focus of the special day and should be held at the beginning of the project. It can be developed within school if the expertise is available, or can be booked through companies such as [Children's Musical Adventures](#). \*

- + Decide on a theme for the workshop, e.g. Willy Wonka's invention room.
- + Start with an **opening assembly** where a short but exciting and entertaining piece of music to grab attention is performed live, e.g. Medley of music from Roald Dahl musicals such as Matilda. Follow this with an **interactive demonstration of instruments** - What they are how they work? Learn a rhythm or tune that will appear later in workshop when the compositions by smaller groups are pieced together for the performance.
- + Break into smaller groups to create a piece of music using the instruments provided. Composition theme could be the next invention from Willa Wonka's invention room - so scary music or exciting music etc.
- + The whole group comes together to perform a composition that links all the individual group compositions with the rhythm learnt earlier in the workshop.
- + Groups continue to rehearse and improve performances in the build up to the special day.
- + The groups perform on the special day, alongside the musical instruments from the assembly.

### Make it Digital

**On the day** - Create i-movie trailers for the new invention to be played before the performance.

**Developing the task** - Groups can record the performances for self-assessment purposes and learners can create QR codes for visitors to view the movies around the school.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- + **Expressive arts**
- + Health and well-being
- + Humanities
- + **Languages, literacy and communication**
- + **Mathematics and numeracy**
- + Science and technology.

### Cross Curricular Responsibilities

Literacy - OS1, OS2, OS3, OS5, OL1, OL3, OC1, OC2, WM2, WM3, WG1a

Numeracy - N1, N8

Digital Competence - 1.3, 2.2, 2.3, 3.1, 3.2, 3.3,



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# Numeracy Walk

## Y6

A walk through the school grounds with stations along the way containing interactive numeracy tasks and activities.

### Pre-teaching

- ✚ Explore [example activities](#) from each numeracy area with the children
- ✚ Model changing an element of the task to create a new task, e.g. changing numbers involved, changing the theme.
- ✚ Set learners the challenge of creating a task for the themed numeracy trail
- ✚ This task can be easily differentiated for any age range or ability through parameters set for the tasks, e.g. number range, allocating different tasks to different groups and introduction of tasks, e.g. to support learners: trial a task; model changing it; then learners change a similar task.

### Developing the Task

- ✚ Learners create their task and include instructions for using the task. These could be written instructions or videoed explanations.
- ✚ Visitors could be entered into a draw for a prize. Learners could record the tasks with the most correct answers.
- ✚ Data could also be collected on the most popular tasks/ events of the day.

### Make it Digital

- ✚ Learners take photos for the Llygaid Mathemateg image
- ✚ Create QR codes for the tasks
- ✚ Video explanations of task

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ Expressive arts
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ **Science and technology.**

### Cross Curricular Responsibilities

Literacy – OS2, OS3, OS4, OC1, OC2, WM1, WM3, WM4, WM5

Numeracy – All pathways can be developed depending on tasks created

Digital Competence – 1.2, 1.3, 2.3, 3.1, 3.2, 3.3,





# Storytellers Corner

Y5

A comfortable corner of the school to listen to Roald Dahl stories and poems.

## Pre-teaching

- ✚ Read Roald Dahl poetry and stories to the children. Explore what makes them fun and the importance of expression, timing, reading punctuation etc.
- ✚ Create success criteria with the children for performances.

## Developing the Task

- ✚ Learners rehearse reading or performing a poem or story, evaluating and improving their performance against the success criteria.
- ✚ Perform poems and stories.

## Extension

- ✚ Choose a Roald Dahl story or rhyme and [investigate his use of rhyme and nonsense words](#). Children create their own Roald Dahl chapters or versions of nursery rhymes.

## Make it Digital

- ✚ Learners record themselves performing the stories and plays, either for assessment or sharing.
- ✚ Create QR codes so visitors can watch the performance by scanning the code.
- ✚ Create trailers for the new chapters or versions of nursery rhymes.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ Expressive arts
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ Mathematics and numeracy
- ✚ **Science and technology.**

## Cross Curricular Responsibilities

Literacy – OS4, RS2, RS3, RS4, WM1, WM3, WM5, WL1, WL2, WG1

Numeracy – N/A

Digital Competence – 2.3, 3.2, 3.3,





# Treasure Hunt

## Y4

A treasure hunt in the school grounds to find the golden ticket.

### Pre-teaching

- ✚ Introduce the concept of a treasure hunt and look at the [examples](#), solving the clues together.

### Developing the Task

- ✚ Give learners the [sample riddles and clue ideas](#) to create their own treasure hunt.
- ✚ Learners create their clues and set up clues in the grounds.
- ✚ Decide what the treasure should be – a Roald Dahl book, free tickets to the performance etc. This could be developed further by collecting data and voting to decide.
- ✚ Trial the treasure hunt, evaluating and improving where necessary.

### Extension

- ✚ Children create their own riddles and clues. Use co-ordinates for clues.

### Make it Digital

- ✚ Set up QR codes so visitors can access clues by scanning the codes.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ Expressive arts
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ **Science and technology.**



### Cross Curricular Responsibilities

Literacy – OC1, OC2, RS8, WM1, WM3, WM5, WL1, WL2, WG1, WG2, WG3,

Numeracy – All Skills could be covered depending on clues used. Treasure Hunt examples cover:

N12, M1, M3, M8, M9, D3,

Digital Competence – 2.3, 3.2, 3.3,



Various exhibition stalls from local businesses in the school hall selling wares to the visitors. Alternatively the children could develop the stalls themselves. (See Dragon Steps Enterprise Week Cards).

### Pre-teaching

- ✚ Discuss the concept of local businesses and consider businesses in the area. Consider which businesses would be most appropriate to invite to the event (Don't forget larger stores that are often keen to work with schools).
- ✚ Invite local businesses in to talk to the children about their business.
- ✚ Research persuasive techniques and letters

### Developing the Task

- ✚ Consider the benefits for the businesses of having a stall at the event.
- ✚ Contact local businesses to persuade them to hold a stall at the special day, e.g. by writing letters.

### Extension

- ✚ Work out data facts to persuade businesses, e.g. considering footfall in town centre and footfall for the special event.

### Make it Digital

- ✚ Record persuasive messages to local businesses.

### Cross Curricular Responsibilities

Literacy – OS2, OS3, OS4, OL1, OL3, OC1, OC2, RS8, WM1, WM2, WM3, WM4,  
WM5, WL1, WL2, WG1, WG2, WG3,

Numeracy –D3, D4, N2, N3,

Digital Competence – 2.3, 3.1, 3.2, 3.3,

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ Expressive arts
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ **Science and technology.**





# A Special Day Job Card

Y5/6

## Planners

Such an important day, involving the whole school will take a lot of planning. Children can gain vital skills, taking on the various planning roles themselves. Planners will need to consider timetabling and mapping out of areas.

### Pre-teaching

- ✚ Ensure children understand and can use various timetables.
- ✚ Reinforce children's measuring skills and understanding of perimeter and area.

### Developing the Task

- ✚ Find out about the different events being held on the day, e.g. time and space needed for the event.
- ✚ Plan the timings for each event, taking into consideration set daily events, e.g. lunches, playtimes etc.
- ✚ Decide, measure, and mark out where each event will take place, e.g. exhibition stalls, numeracy walk etc.

### Extension

- ✚ Plan classes' bus or train journeys to the local community for research or advertising purposes

### Make it Digital

- ✚ Use the internet to research bus and train journey times.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ Expressive arts
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ Science and technology.

### Cross Curricular Responsibilities

Literacy – OC1, OC2, RS8,

Numeracy –examples cover: N2, N3, N5, M1, M2, M3, M4, M5, M6, M9, M10, D3,

Digital Competence – 4.2





# A Special Day Job Card

All Year groups

## Advertising

The event will need to be advertised to ensure that everyone knows what is happening and no-one misses the day!

### Pre-teaching

- ✚ Investigate different forms of advertising, e.g. radio, posters, flyers, newspapers, website. This would suit each class investigating and developing a different type of advertising, i.e. N/R posters, Y1/2 flyers, Y3/4 radio, Y5/6 newspapers and website.
- ✚ Research persuasive techniques for the chosen form of advertising.

### Developing the Task

- ✚ Create advertising material, trialling effectiveness of advertisement and amending from feedback.

### Extension

- ✚ Write persuasive letters to local newspapers and radio for free advertising.

### Make it Digital

- ✚ Record jingles to be played on local radio advertising the special day.
- ✚ Record videos to play on the school twitter account or website.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ **Expressive arts**
- ✚ Health and well-being  
Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ **Science and technology.**



### Cross Curricular Responsibilities

Literacy – OS2, OS3, OS4, OC1, OC2, RS5, RS6, RS8, RC6, RA2, RA3, RA4, RA6, WM1, WM3, WM4, WM5, WS1, WS5, WL1, WL2, WG1, WG2,  
Numeracy – N/A

Digital Competence – 1.1, 1.2, 1.3, 1.4, 2.3, 3.1, 3.2, 3.3



# A Special Day Job Card

Y3-6

## Budgeting

Creating a special day will require a budget which can be planned and managed by children. This can be kept simple, giving each class a budget and looking at how to make the most of the budget, or developed further to look at charging visitors and local businesses for entry so that profit and loss can be considered.

### Pre-teaching

- ✚ Introduce the concept and importance of budgets.
- ✚ Look at pricing for similar events and consider possible costs.
- ✚ Look at keeping within a budget and strategies to stretch budgets, e.g. bulk buying, shopping around etc.

### Developing the Task

- ✚ Research best prices for materials and purchase materials.
- ✚ A budget for advertising could be given and children could research costs and effectiveness of the different forms of advertising and allocate a budget to each class.

### Extension

- ✚ Calculating profit and loss and how future events could be improved.

### Make it Digital

- ✚ Using the internet for research and shopping.

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- ✚ **Expressive arts**
- ✚ Health and well-being
- ✚ Humanities
- ✚ **Languages, literacy and communication**
- ✚ **Mathematics and numeracy**
- ✚ **Science and technology.**



### Cross Curricular Responsibilities

Literacy – OC1, OC2, RS5, RS8, RA3,  
Numeracy – N2, N3, M5, M12, N15, N16, N17, N18,  
Digital Competence – 3.1, 4.2



# A Special Day Job Card

All Year groups

## Reporters

With so much effort put into creating a special day, it is important to record and report on the process and event.

### Pre-teaching

- Investigate different forms of reporting events, e.g. including newspaper reports, newsletters, T.V. report. This would suit each class investigating and developing a different type of reporting, i.e. N/R assemble presentation, Y1/2 newsletter/ tweets, Y3/4 T.V. report, Y5/6 newspaper report/ website.
- Research reporting techniques for the chosen form of report

### Developing the Task

- Create reports, evaluating and amending as necessary.
- Apply for reports to be shown in a local newspaper or on an outside website, e.g. local council, educational company etc.

### Extension

- Apply for reports to be shown in a local newspaper or on an outside website, e.g. local council, educational company etc.

### Make it Digital

- Children can take the role of photographers for the reporting.
- Recording of oral and T.V. presentations

Areas of Learning in **bold** are the areas that fit most naturally with this task.

- Expressive arts**
- Health and well-being
- Humanities
- Languages, literacy and communication**
- Mathematics and numeracy**
- Science and technology.**

### Cross Curricular Responsibilities

Literacy – OS1, OS2, OS3, OS4, OC1, OC2, WM1, WM2, WM3, WM4, WM5, WS1, WS2, WS4, WS5, WL1, WL2, WG1, WG2, WG3, WG4, RS2, RS3, RS4, RS5, RS6, RS7, RS8, RC3, RC4, RA3,

RA4, RA5, RA6

Numeracy – D4

Digital Competence – 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3

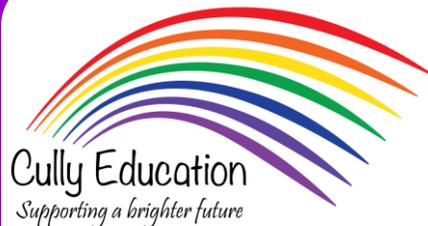




# Developing the task further

This task would combine well with other authentic tasks from Dragon Steps:

- ✚ Making International links - Information gathered and resources created can be used in an international project with another school.
- ✚ Building Community links - Created resources can be used to develop community links, e.g. an entertainment visit to an old people's home or local hospital
- ✚ Fundraising Links - Proceeds from the special day could be given to a local charity or community concern.





# Roald Dahl Book List



## N/R

- ✚ The Enormous Crocodile
- ✚ The Giraffe and the Pelly and Me
- ✚ Esio Trot

## Y1/Y2

- ✚ The Magic Finger
- ✚ The Twits
- ✚ Fantastic Mr Fox

## Y3/Y4

- ✚ George's Marvellous Medicine
- ✚ The BFG
- ✚ James and the Giant Peach
- ✚ Matilda
- ✚ Charlie and the Chocolate Factory
- ✚ Charlie and the Great Glass Elevator

## Y5/Y6

- ✚ The Witches
- ✚ Danny the Champion of the World
- ✚ The Vicar of Nibbleswicke

## Poetry

Revolting Rhymes

Dirty Beasts

Songs and verse

## About

### Roald Dahl

- ✚ Boy
- ✚ More about Boy
- ✚ Going Solo



# Roald Dahl Numeracy Trail

Y6

## A Roald Dahl Image

Display a real-life image, related to Roald Dahl, and ask visitors numeracy questions about the image to help them develop their 'Llygaid Mathemateg' and see maths in the world around them.

### Pre teaching

- ✚ Use [Llygaid Mathemateg](#) images and questions as a daily settling down task, to familiarise learners with the process.
- ✚ Encourage learners to ask their own mathematical questions about the images.

### Developing the task

- ✚ Use a Roald Dahl related image such as the [Norwegian Church](#) – where Roald Dahl was baptised.
- ✚ Learners develop some mathematical questions about the image, e.g. Which of these would be the closest estimate for the length of the church? 100cm, 10m or 1km [Answer](#) The photo is then displayed on the learning walk alongside the questions.

### Extension

- ✚ Learners create a [numerical reasoning question](#) for the image.

### Make it Digital

- ✚ Set the image and questions up as a QR code.
- ✚ Children take their own photos for the image.

## Resources

- ✚ Camera
- ✚ Llygaid Mathemateg image and questions
- ✚ Llygaid Mathemateg glasses



## Y6 Numeracy Pathways

- ✚ make estimates of length, based on knowledge of the size of real-life objects, recognising appropriateness of units in different contexts
- ✚ convert between standard units of time
- ✚ calculate start times, finish times and durations using hours and minute

## NR Pathways

- ✚ identify the appropriate steps & information needed to complete the task or reach a solution
- ✚ select appropriate mathematics and techniques to use
- ✚ use appropriate notation, symbols and units of measurement



# Roald Dahl Numeracy Trail

Y6

## What are the odds?

A station where visitors are challenged to predict the odds using large dice.

### Pre teaching

- ✚ Investigate the possible outcomes of rolling a die and use numbers to express the likelihood of rolling certain numbers.

### Developing the task

- ✚ Attach the classes' favourite Roald Dahl characters to the sides of a large dice. Challenge visitors to find the odds of landing on a certain character. Prizes can be awarded to the answer that is proved correct.

### Extension

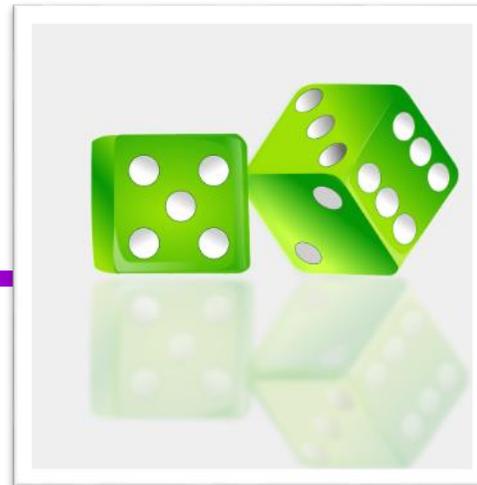
- ✚ Investigate the odds of rolling matching numbers using 2 dice. Attach characters to one of the dice and book titles to the other. Visitors are challenged to identify the odds of rolling a character and the matching book.

### Make it Digital

- ✚ Create the character pictures and names using ICT.
- ✚ Create a QR code for the task instructions.

### Resources

- ✚ Dice
- ✚ Large dice
- ✚ Roald Dahl character names or pictures
- ✚ Roald Dahl Book titles or book-cover pictures



### Y6 Numeracy Pathways

- ✚ use numbers to describe the likelihood of an event, e.g. a one-in-six chance
- ✚ identify the outcomes of simple events, e.g. flipping a coin, rolling a dice.



# Roald Dahl Numeracy Trail

Y6

## What's the rule?

Visitors find several piles of nuts and have to decide the rule that Willy Wonka's squirrels are using to move onto a new pile.

### Pre teaching

- ✚ Investigate continuing sequences when given a rule.
- ✚ Investigate numbers or sets of objects increasing/decreasing in size to find out the rule, e.g. add four etc.

### Developing the task

- ✚ Willy Wonka's trained squirrels have left piles of nuts in the playground. Create piles of nuts, and challenge visitors to find out the rule for the adding nuts to each pile.

### Extension

- ✚ Investigate finding the nth rule. Challenge visitors to find the nth rule and work out how many nuts would be in the 100<sup>th</sup> pile.

### Make it Digital

- ✚ Create a QR code for the task instructions.
- ✚ Use an app to support visitors that need a clue, e.g. Explain Everything.



### Resources

- ✚ Sets of objects
- ✚ Large bag of nuts
- ✚ Containers to hold piles of nuts

### Y6 Numeracy Pathways

- ✚ find the term to term rule for ascending and descending sequences, e.g. 3, 7, 11, 15 add 4
- ✚ generate a sequence given the first term and the term to term rule
- ✚ consider spatial patterns, e.g. square numbers

### Y7 Numeracy Pathways

- ✚ distinguish between a term to term rule and an nth term rule
- ✚ explore number sequences
- ✚ express nth term rules involving 1 & 2 steps in words and symbols



# Roald Dahl Numeracy Trail

Y6

## Estimate Station

Visitors are challenged to estimate how many sweets Billy has in his jar and the length of Abigail's pigtail.

### Pre teaching

- Give learners lots of experience of estimating and checking numbers of, and lengths of, objects.

### Developing the Task

- Billy from 'The Giraffe and the Pelly and Me' is opening his own sweet shop. Add sweets to a large jar, counting and checking how many sweets there are. Challenge visitors to estimate how many sweets Billy has in his jar.
- Amanda Thripp has chopped off her pigtails! Create a large pigtail using wool and carefully measure the length. Challenge visitors to guess the length of the pigtail.

### Extension

- Investigate numerical reasoning questions about the objects. Challenge visitors with a numerical reasoning question about the objects, e.g. If Amanda's other pigtail was 5% longer, it would be 75cm. True or false?

### Make it Digital

- Create a QR code for the task instructions.
- Use an app to support visitors that need a clue, e.g. Explain Everything.

### Resources

- Jar
- Wool for pigtails
- Bags of sweets
- Rulers, metre sticks, tape measures



### Y6 Numeracy Pathways

- make estimates of length, weight/mass and capacity based on knowledge of the size of real-life objects, recognising the appropriateness of units in different contexts

### NR Pathways

- identify the appropriate steps & information needed to complete the task or reach a solution
- select appropriate mathematics and techniques to use
- use appropriate notation, symbols and units of measurement

## George's Marvellous Medicine

Visitors have to help George label his potions so he can cure his grandma's grumpiness.

### Pre teaching

- Give learners lots of experience calculating temperature differences, including those involving temperature rise and fall across  $0^{\circ}\text{C}$ . Investigate possible answers for a potion mix up using [example](#) clues.

### Developing the task

- George dropped his ingredients mixing them up and splashing the instructions. Create clues to sort the labels using temperature differences. Challenge visitors to help George label his ingredients so that he can make his medicine to cure Grandma's grumpiness.

### Extension

- Investigate recording measurements in different ways. Use for [problem solving](#).
- Challenge visitors to find out how long it will take Granma to drink all her medicine.

### Make it Digital

- Create a QR code for the task instructions.
- Use an app to support visitors that need a clue, e.g. Explain Everything.

### Resources

- Potion bottles and labels

### Y6 Numeracy Pathways

- add or subtract across zero using a number line, e.g.  $-3 + 5$ ,  $4 - 6$
- calculate temperature differences, including those involving temperature rise and fall across  $0^{\circ}\text{C}$
- record measurements in different ways, e.g.  $1.3\text{kg} = 1\text{kg } 300\text{g}$

### Y7 Numeracy Pathways

- convert between units of the metric system and carry out calculations





# Roald Dahl Numeracy Trail

Y6

## Miss Trunchball's Missing Chocolate Cake

Visitors are challenged to find out who had the opportunity to steal Miss Trunchball's chocolate cake from her office.

### Pre teaching

- ✚ Use timetables, [convert units of time](#) and use in calculations.

### Developing the Task

- ✚ Miss Trunchball is on the warpath because someone has stolen a slice of her chocolate cake. She thinks the robbery took place at 11:45. Challenge visitors to find out who had finished all of their activities in time to be the thief.

### Extension

- ✚ Miss Trunchball is on the warpath because someone has stolen a slice of her chocolate cake. She has three suspects. Challenge visitors to work out who could have stolen the chocolate cake and when, [using the timetables](#).

### Make it Digital

- ✚ Create a QR code for the task instructions.
- ✚ Use an app to support visitors that need a clue, e.g. Explain Everything



### Y6 Numeracy Pathways

- ✚ use and interpret timetables and schedules to plan events and activities and make calculations as part of the planning process
- ✚ convert between standard units of time

### NR Pathways

- ✚ identify the appropriate steps & information needed to complete the task or reach a solution
- ✚ select appropriate mathematics and techniques to use

### Resources

- ✚ Chocolate cake
- ✚ Timetables



# Roald Dahl Numeracy Trail

## Y6

## Roald Dahl's most popular character

Visitors are challenged to interpret graphs to answer questions about favourite Roald Dahl characters.

### Pre teaching

- ✚ Interpret graphs to answer questions. Create bar charts from data collected.

### Developing the Task

- ✚ Collect data for Roald Dahl's most popular character. Represent data in a bar chart. Visitors are challenged to [interpret the bar chart](#) to answer a question about the most popular character.

### Extension

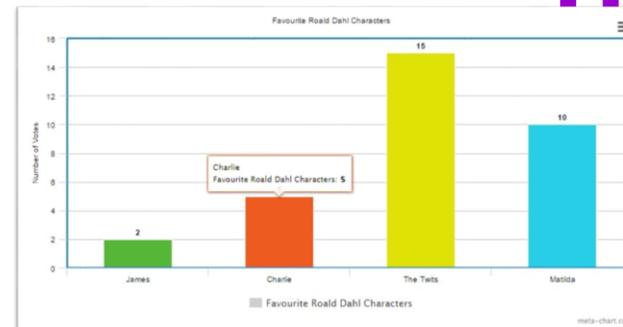
- ✚ Investigate creating pie charts. Visitors are challenged to [interpret a pie chart](#) to answer a question about the most popular character.

### Make it Digital

- ✚ Use ICT programs to create graphs
- ✚ Create QR codes to view graphs or instructions

### Resources

- ✚ Data for graphs
- ✚ Bar chart
- ✚ Pie chart



### Y6 Numeracy Pathways

- ✚ represent data using: – lists, tally charts, tables, diagrams & frequency tables – bar charts, grouped data charts, line graphs & conversion graphs
- ✚ extract & interpret information from an increasing range of diagrams, timetables and graphs (including pie charts)

### Y7 Numeracy Pathways

- ✚ construct & interpret graphs & diagrams (including pie charts) to represent discrete or continuous data, with the learner choosing the most appropriate representation, including frequency polygons & lines of best fit on scatter diagrams



# Roald Dahl Numeracy Trail

Y6

## All things 100

Visitors solve number puzzles involving the number 100.

### Pre teaching

- ✚ Explore numbers together e.g. use [number spiders](#)

### Developing the Task

- ✚ Miss Spider is celebrating Roald Dahl's birthday by spinning ways to make 100. Challenge visitors to find the most ways to make 100 using whole numbers, no more than 2 steps and  $\times$ ,  $\div$ ,  $+$ ,  $-$  and  $=$
- ✚ OR challenge visitors to find all the divisors of 100 (1, 2, 4, 5, 10, 20, 25, and 50)

### Extension

- ✚ Investigate prime numbers – find which numbers add to make 100. Challenge visitors to find which 9 prime numbers can be added to make 100 (The sum of the first 9 primes is  $2 + 3 + 5 + 7 + 13 + 17 + 19 + 23 = 100$ ).
- ✚ OR Challenge visitors to find two prime numbers which add to make 100 ( $3 + 97$ ,  $11 + 89$ ,  $17 + 83$ ,  $29 + 71$ ,  $41 + 59$ , and  $47 + 53$ ).

### Make it Digital

- ✚ Create QR codes for instructions or to support visitors, e.g. a QR code to access a 100 square

### Resources

Instructions and supporting resources, e.g. number-lines, hundred squares etc.



### Y6 Numeracy Pathways

- ✚ add and subtract numbers using whole numbers and decimals
- ✚ divide 3-digit numbers by a 2-digit number
- ✚ identify prime numbers
- ✚ know prime numbers below 20

### Y7 Numeracy Pathways

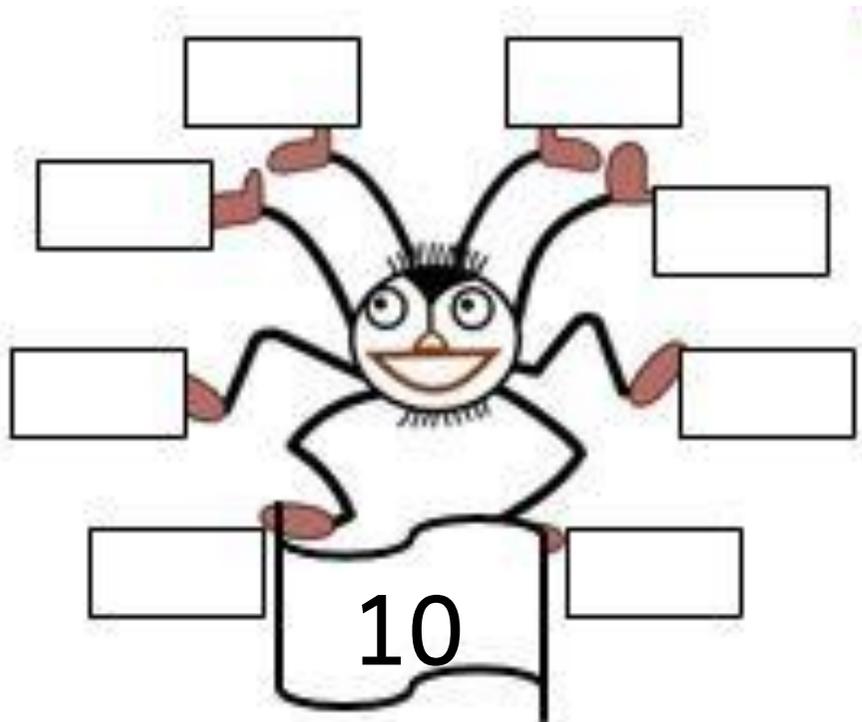
- ✚ justify whether a number is a prime number or not



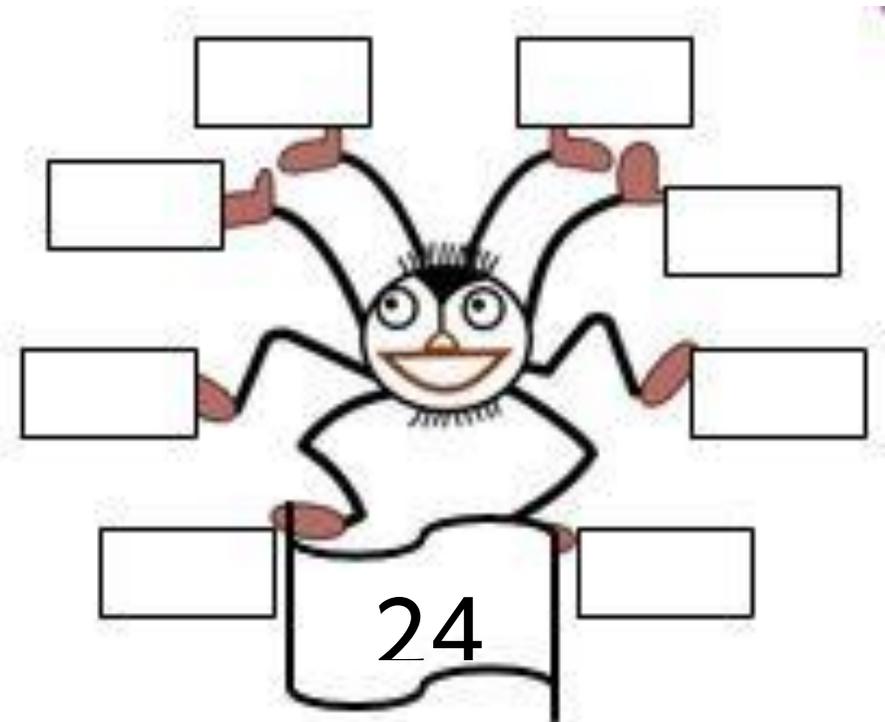
Y6

# Miss Spider Numbers

How many ways can you make...



How many factors can you find...





# Roald Dahl Treasure Hunt

Y4

## An Example

- Start by me and face NE - My mouth's always open though my bottom's dropped out. Feed me from afar and you'll hear the kids shout. (A basketball hoop.)
- Walk 10 paces forward then look for me - I have lots of bark but not any bite (a tree). When you reach me, turn NW. finding the difference will tell you the steps. ( $809 - 794 = 15$  steps)
- Order the temperature cards  $-10^{\circ}$  to  $10^{\circ}\text{C}$ , to spell out the next place.

-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
A	D	V	E	N	T	U	R	E		P	L	A	Y	G	R	O	U	N	D	

- Face SW and walk 0.01km forward - make sure you measure it right or you will look a fool! (a variety of measuring instruments available and set false clues in different directions/ at 9m etc.)
- Another riddle here for you to solve. I'm full of water but don't take a sip. I'm home for tadpoles, fish and ducks. (The pond area).
- Once you reach here, you need to head west and look for a seat you push with your feet. (A swing).
- Almost there. You just need to walk 0.0075km east and look for a box. (Need to convert to metres and measure distance - set false clues in different directions/ at 7m etc.)
- The box that you need is just right for the clue. I'm 27g, just weigh me and see! (Have a couple of boxes of different weights and weighing scales/pan-scales).





# School-based Sample Riddles

Y4

**Hall** – Awards, plays and concerts, I see it all but I never go out.

**Field** – A sea of green, I'm cut if I get tall.

**Running track** – Run around me and you can go for miles but will always end up back where you start.

**Swings** – Look for a seat you push with your feet

**Library** – I'm full of wisdom and stories that I cannot tell, visitors to me must be silent.

**Vegetable Garden** – Started in rows there is nothing to see, then as I grow, you will start to eat me!

**Pond Area** – I'm full of water but don't take a sip. I'm home for tadpoles, fish and ducks.

**Tree** – Climbing me can be quite a lark. I'm not a dog but I do have a bark.

**Gate** – I swing out and in to let you in, I sometimes creak and that's your last clue

**Fence** – Tall and erect I keep you safe. I can be metal or wood and often have a gate.

**Door** – I am sometimes ajar but you won't find any jam in me.

**Window** – I allow you to see straight through walls.

**Desk** – I have 4 legs but don't get very far. People lean on me to write.

**Chair** – Under a sea plus hair

**Noticeboard** – Silent I stand, never speaking a word – I'll tell you what's on but my message will be seen and not heard.

**Whiteboard** – 30 pairs of eyes look at me to learn, but only in the day and not the Teach!

## Sample Clues

- ✚ Order temperature/number cards to spell out a clue
- ✚ Find the difference for number of steps
- ✚ Multiply, divide or add for number of steps – make this one harder by using a code
- ✚ Convert to smaller units to find distance/number of steps.
- ✚ Have numerical reasoning problems to solve to find number of steps/weights etc.



Dragon Steps



Norwegian Church Arts Centre  
and Norsk Coffee Shop





The closest estimate would be 10m.

Children should use knowledge of the average bench length (approximately 2m) to work out the length of the church.



Dragon Steps

[Click for Numerical Reasoning Question and answer](#)

Norwegian Church in Cardiff where  
Roald Dahl was baptised



**Dr Who**  
Opening  
Hours  
9:30 - 3:15

**Church**  
Closed for  
lunch  
12:30 - 1:15  
Closing Time  
3:30





**Question.**

The church is open 35 minutes less than Dr Who. What time does the church open?

**Answer.**

It opens at 9:35am.

Dr Who is open from 9:30 - 3:15, which is 5hrs 45 mins.

The church needs to open for 35 minutes less than this which would be 5 hrs 10 mins.

The church closes at 3:30 so 5 hrs 10 minutes earlier than this is 10:20.

As the church is closed for lunch for 45 minutes we need to open 45 minutes earlier which is 9:35.

Taken from Dragon Puzzler – a free daily puzzle [www.cullyeducation.co.uk](http://www.cullyeducation.co.uk)





# George's Marvellous Medicine



George dropped his potion ingredients.  
Can you help him label them?



1°C



9°C



0°C



10°C



-2°C



2°C



4°C



3°C



-9°C



-5°C

Hope = -2°C

Sunny smiles = 4°C

Optimism = 3°C warmer than Hope

Kindness = -5°C

Sympathy = 1°C cooler than a Loving heart

Calmness = 10°C cooler than Optimism

Loving heart = 6°C warmer than Sunny smiles

Friendship = 1°C cooler than Optimism

Happiness = 7°C cooler than Loving heart

Empathy = 4°C warmer than Hope

Answers





## George's Potion Labels

Sunny smiles = 4°C

Optimism = 1°C

Kindness = -5°C

Sympathy = 9°C

Calmness = -9°C

Loving heart = 10°C

Friendship = 0°C

Happiness = 3°C

Hope = -2°C

Empathy = 2°C





George can only give his grandma 0.01l at a time in her tea or she will notice the taste. Grandma drinks 10 cups of tea a day. How long will it take Grandma to drink all of the medicine?

Answer

Recipe to cure  
grumpiness

- 10ml Sunny smiles
- 10ml Optimism
- 10ml Kindness
- 100ml Sympathy
- 100ml Calmness
- 100ml Loving heart
- 10ml Friendship
- 10ml Happiness
- 50ml Hope
- 100ml Empathy





## How long will it take George's Grandma to drink the medicine?

It will take George's Grandma 5 days to drink the medicine.

The recipe adds up to 500ml of medicine

She can drink 0.01l, 10 times a day = 0.1l a day.

0.1l = 100ml a day so it will take 5 days to finish the medicine.





Mrs Trunchball thinks that her chocolate cake was stolen at 11:45. Can you work out who had finished all of their activities in time to steal the cake?

Lavender	
Starts at 8:00	
Swim	1800 secs
Breakfast	45 mins
Study	2 hrs
Choir	2700 secs

Amanda	
Starts at 8:15	
Swim	20 mins
Breakfast	1800 secs
Study	100 mins
Choir	1 hr

Bruce	
Starts at 8:30	
Swim	2700 secs
Breakfast	45 mins
Study	1 hr
Choir	60 mins



# Timetables

## Distance from Miss Trunchball's office

Gym 5 minutes

Dinner Hall 10 mins

Dormitories 15 mins

Music Room 20 mins

### Miss Trunchball's Timetable

Activity	Left office at...	Activity Venue	Duration of activity
Hockey match	3:15pm	Gym	20 mins
Bed Inspection	8:15am	Dormitories	25 mins
Lunch	12:00pm	Dinner Hall	45 mins
Music Lesson	1:15pm	Music Room	1 hr
Spot check	10:00am	Dormitories	1 hr 10 mins

### Lavender's Timetable

Activity	Start time	Activity Venue	Duration of activity
Netball	8:15am	Gym	1 hr
Nap time	10:00am	Dormitory	2 hrs
Lunch	12:05pm	Dinner Hall	1 hr
Play rehearsal	1:15pm	Music Room	2 hrs
Choir	3:30pm	Music Room	1 hr





# Timetables continued...

**Amanda's Timetable**

Activity	Start time	Activity Venue	Duration of activity
Dance	8:15am	Gym	1hr
Nap time	10:00am	Dormitory	1 ½ hrs
Lacrosse	11:40am	Gym	1hr
Lunch	12:45pm	Dinner Hall	1 hr 15 mins
Play rehearsal	2:10	Music Room	2 hrs

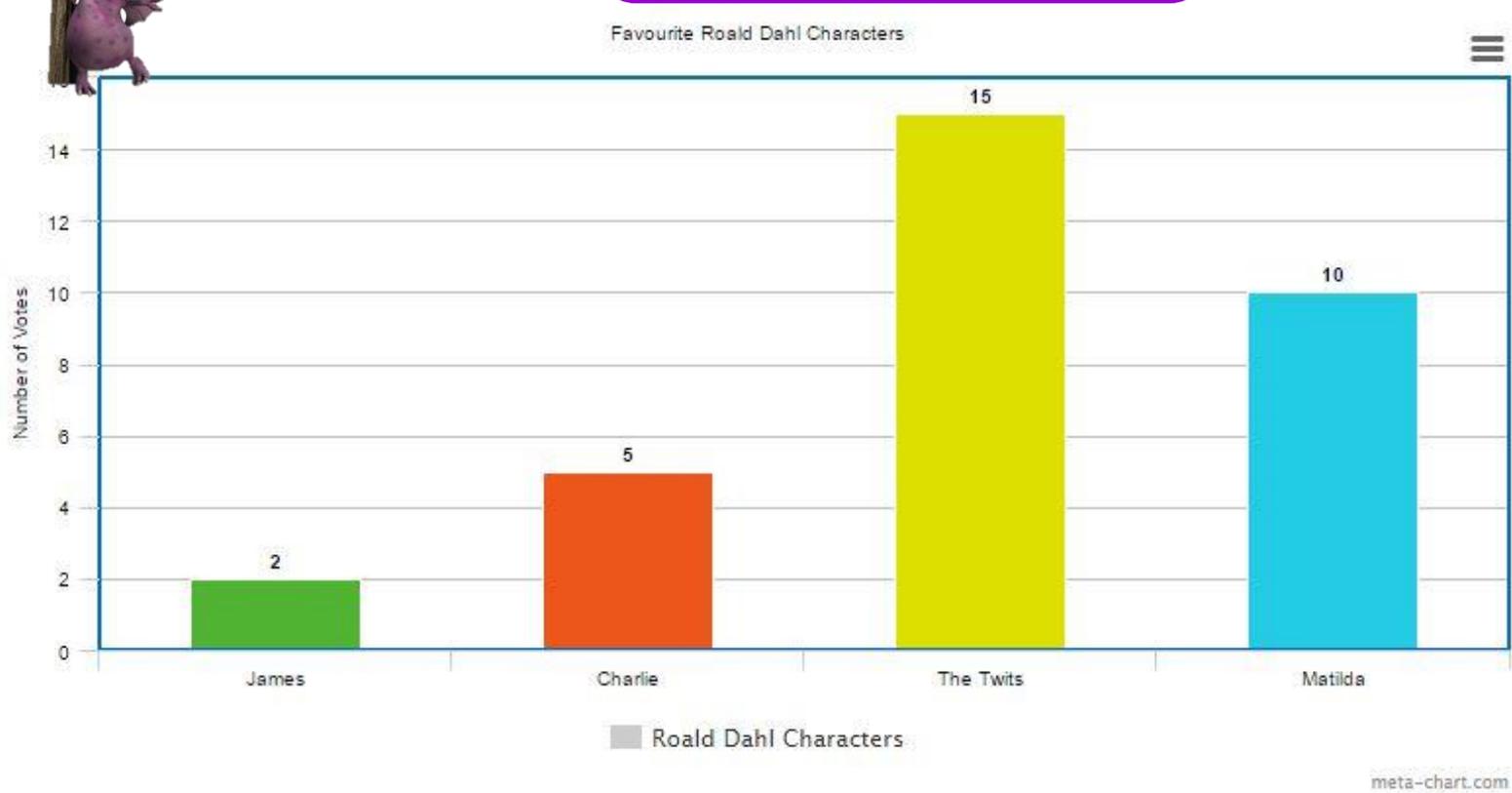
**Bruce's Timetable**

Activity	Start time	Activity Venue	Duration of activity
Football	8.15am	Gym	1 hr
Nap time	10.00	Dormitory	2 hrs
Choir	12:10	Music Room	1 hr
Lunch	1:15	Dinner Hall	1 ½ hrs
Gymnastics	3:30pm	Gym	1 hr





# Bar Charts



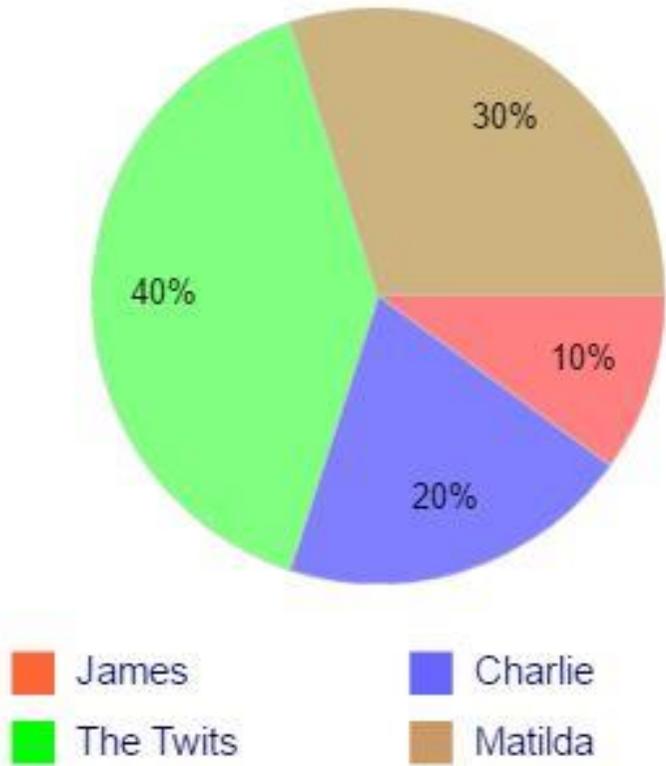
If I double the number of people who voted for me, I would have beaten 'The Twits' by 5 votes.  
Who am I?





# Pie Charts

Popular Roald Dahl Characters



**If data was collected from 56 people, how many people voted for Matilda?**





# Roald Dahl's Dictionary

**Gobblefunk:** Roald Dahl's special language with different words that most people don't know

**Bogglebox:** A school for boys  
**Bopmugged:** Caught  
**Crodscollop:** An absolutely great flavour!  
**Crodsquinkled:** Caught  
**Exundly:** Exactly  
**Filthsome:** YUCK  
**Flushbunkled:** Caught. As caught as a bee in a web  
**Frightsme:** Very Frightening  
**Frothbuggling:** Silly  
**Gloriumptious:** Glorious and wonderful  
**Hopscotch:** cheerful  
**Jiggered:** There is no hope  
**Jumbly:** All mixed up  
**Jumpsquiffing:** Something absolutely colossal  
**Kiddles:** Children  
**Phizzwizzards:** Great Dreams  
**Phizz-Whizzing:** Brilliant  
**Lixivate:** Being turned into liquid and being squashed at the same time

**Poisnowse:** Poisonous!  
**Propsposterous:** Ridiculous  
**Quogwinkle:** An alien from space ing confused  
**Ringbeller:** The opposite of a Trogglehumper, a really great dream  
**Snozzcumber:** A gruesome vegetable, found only in Giant Country  
**Splatch-winkle:** Hurrying about  
**Splitzwiggled:** Caught  
**Squibbling:** Writing  
**Svollop:** To demolish  
**Swatchscollop:** Disgusting food  
**swigpill:** Disgusting food  
**Swogswallowed:** Caught  
**Trogglehumper:** An absolutely frightful dream  
**Vermicious Knid:** A very bad alien that "lixivate" you very easily  
**Whizzpopping:** Methane released from the bottom  
**Whoopsy-splunkers:** Fantastic  
**Time-Twiddler:** It is something that is immortal  
**Whoopsy wiffling:** Great!!!





# Rhyming couplets

Rhyming couplets means 2 successive lines rhyme, e.g.

*Jack was frightened, Jack was quick,  
And down he climbed in half a tick.*

Here are some of  
Roald Dahl's rhyming  
words for you to use

alack - back  
all - ball  
anyone - fun  
away - day  
back - whack/smack  
broke - bloke  
came - vain  
Cinderella - cellar  
coach - brooch  
cried - bride/replied  
dart - heart  
doubt - about  
down - town  
drew - shoe  
ear - here  
eat - feet  
fairy - wary  
fear - beer

floor - door  
go - toe/no  
grew - shoe  
guarantee - me  
icky - sticky  
know - ago  
laughter - after  
light - right  
man - can  
money - honey  
out - shout  
pressed - chest  
pulp - gulp  
put - foot  
right - night  
said - head  
sappy - happy

see - be  
shreds - heads  
sisters - blisters  
shoe - loo  
spuds - thuds  
sound - pound  
story - gory  
swish - wish  
thicker - sicker  
tick - flick  
those - hose  
town - down  
underwear - stair  
vow - now  
wall - ball  
whoopee - me  
wide - inside  
wince - prince

