Numeracy
Exemplification materials

Reception: Amazing animals

Areas of Learning:

Knowledge and Understanding of the World
Begin to recognise and name a range of common animals.
Begin to understand the basic features of living things.

Personal and Social Development, Well-Being and Cultural Diversity
Explain their choices in simple terms.

Numeracy skills

- Combine two groups of objects to find 'how many altogether?'.

Background information:
Our theme this term is 'Amazing animals'. As part of our theme the children named common animals and discussed where they live.

Activity description:
The children were given large pictures of different habitats (sea, sand, pond, lake, tree, field, soil) and a collection of small cards displaying pictures of a variety of animals. As a group they had to discuss where each animal lives and placed the picture cards where they thought appropriate. The children began to discuss the number of animals in different habitats and this led to a discussion about how many live in water/on land/underground, etc.

Key questions:

- There are 2 animals that live in the pond and 1 that lives in the sea. How many animals live in the water?
- If there are 3 starfish on the beach and 2 more are washed up on the sand, how many are there altogether?
- How many animals live on the land? (Combine the field and the sand.)

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2 animals live in the soil and 1 animal lives in the grass.

2 and 1 makes 3!

The children wrote simple addition sums to show their workings out.

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Reception: Minibeasts

Area of Learning:
Knowledge and Understanding of the World

Myself and other living things

- Begin to understand the basic features of objects, materials and living things.

Numeracy skills

- Count reliably up to 10 objects.
- Compare and order numbers to at least 10.
- Combine two groups of objects to find 'how many altogether?'.

Background information:
The children were learning about minibeasts. As a class we looked at a minibeast each day from the non-fiction book, *Walkabout: Minibeasts* by Henry Pluckrose (Hatchette Children's Books, 2003). We researched the features of each minibeast and the children led the research by asking what they would like to find out about each minibeast. They were very interested in the colours of the minibeasts and how many legs the minibeasts had.

Activity description:
The children were given a selection of minibeasts that they had been researching. As a group we recapped on the different minibeast features. The children were asked to sort the minibeasts onto different plates.

Initially they sorted the minibeasts by colour. They quickly realised that some of the minibeasts were different colours. One child suggested putting minibeasts with wings on one plate and minibeasts without wings on another plate, which they did successfully. When asked if they could think of another way to sort the minibeasts, they moved on to sorting the minibeasts by the amount of legs.

Key questions:

- How can you find out how many legs they have?
- How many legs does a slug have?
- How many legs does a ladybird have?
- How many more legs does a spider have than a ladybird?
- Which minibeast has the most legs?
- Which minibeast has the least legs?
- Show me how many legs an ant has.
- Can you show me 6 another way?
- How are the legs separated?
- So what can you tell me about 3 and 3?
- How many legs are there altogether?

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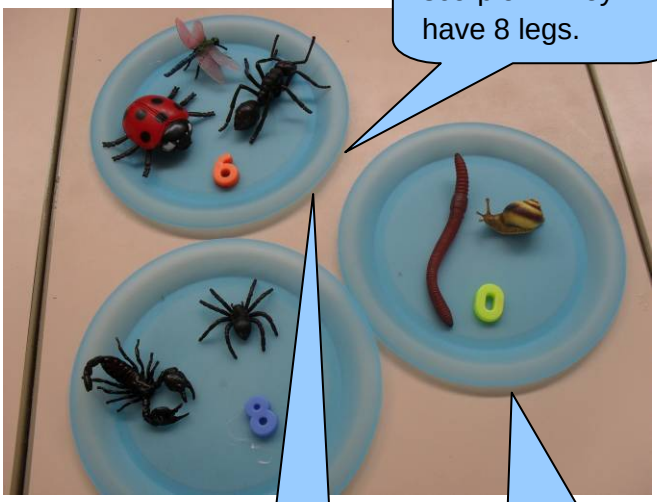
How can you find out how many legs they have?

Count them. 1, 2, 3, 4, 5, 6, 7, 8 . . . A scorpion has 8 legs.

Which minibeast has the most legs?

The spider and scorpion. They have 8 legs.



How are the ladybird's legs separated?

3 on that side, 3 on the other side.

How many legs does a dragonfly have?

The worm has no legs. It can go on this plate.

6 legs, it goes here with the ladybird.

So what can you tell me about 3 and 3?

3 and 3 makes 6.

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Year 1: Doubles garden

Areas of Learning:
Knowledge and Understanding of the World

Myself and other living things
- Identify some animals and plants that live in the outdoor environment.

Creative Development
Art, craft and design
- Develop their understanding of planning, designing, modelling, modifying and reflecting.
- Reflect on their own and others' work.

Numeracy skills

- Use number facts within 10: doubling and halving (*e.g. 4 + 4*).

Background information:
Each year our school holds a gardening competition, therefore we spent time researching, investigating designing and reflecting on our garden.

Activity description:
The children were asked to design and create a 'doubles garden' in the building yard. They were asked to collaborate as a group in order to create a design and then use this to build their garden.

Key questions:
- If there are 4 carrots on one side, how many will you have altogether?
- If we took 2 away from this side, how many would be left altogether?
- If there are 10 roses altogether, how many are on each side?

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We have to cut them out in even numbers; none of the odd numbers are doubles.

If I've got 4 carrots on this side I'll have 8 in total. If I add one more that's 9 and I can't have 9 – it's odd!

Our doubles garden!

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Year 1: The garden centre

Area of Learning:
Language, Literacy and Communication Skills

Oracy

- Use language to create and sustain imaginative play and role plays.

Numeracy skills

- Use number facts within 10: bonds of 10 (*e.g. 6 + 4*).
- Add and subtract numbers when solving problems involving up to 10 objects.

Background information:
As part of our theme for the term 'growing' the children decided they would like to learn more about gardening. They chose to create a garden centre in our role-play corner.

Activity description:
The children were asked to buy and sell priced objects from the garden centre giving appropriate change when needed. They then moved on to investigating what they could buy for 10p using their knowledge of bonds of 10.

Key questions:

- What could you buy for 10p?
- If you had 20p, what could you buy?
- If you bought a large rake for 8p and paid with 10p, how much change would you need?
- If you bought a shovel for 6p and you had 10p to spend, what else could you buy?

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If you're buying seeds for 1p, you need 9p change because 1 and 9 is 10.

You can buy lots of things for 10p. You can buy a watering can for 8p and a pot for 2p or you can buy a shovel for 6p and flowers for 4p.

Here is our garden centre!

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Year 2: Growing

Areas of Learning:
Knowledge and Understanding of the World

Myself and other living things
- Identify some animals and plants that live in the outdoor environment.

Creative Development
Art, craft and design
- Develop their understanding of planning, designing, modelling, modifying and reflecting.
- Reflect on their own and others' work.

Numeracy skills

- Count sets of objects by grouping in 2s, 5s or 10s.

Background information:
Each year our school holds a gardening competition, therefore we spent time researching, investigating, designing and reflecting on our garden.

Activity description:
The children were asked to create a plan showing what they wanted in our class garden. If they were planting fruit or vegetables they had to position them in rows of 2, 5 or 10.

Key questions:
- If there are 5 strawberries on each plant how many would there be on 2, 3, 4, 5 plants?
- If there are 5 carrots in each row how many rows would we need to grow 22 carrots?
- If there are 30 carrots altogether how many rows are there?

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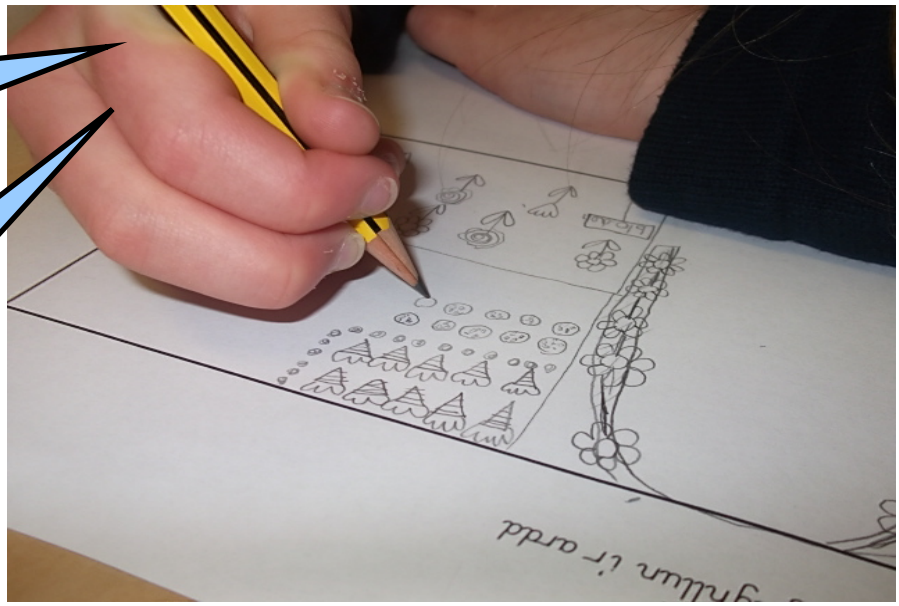
If there are 5 carrots in a row and I want 10. I'll need 2 rows.

If I've got double 9 potatoes then I'll have 18 but I want 22 so I'll need 2 more sets.



Look! We have 2, 4, 6, 8, 10, 12 dirty gloves and 12 dirty wellies!

Rows of 5!

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Year 2: The Royal Family

Area of Learning:
Knowledge and Understanding of the World

Numeracy skills

- Find small differences within 20 by using counting on strategies.
- Gather and record data from:
  – block graphs
  – pictograms where the symbol represents one unit.

Background information:
The children had been researching the life of Queen Elizabeth II and had taken particular interest in her family. Through role play they pretended to be the Queen and her children. The rest of the class interviewed the 'Royal Family' to find out more information about them.

Activity description:
Following their role play the children drew a 'Royal Family' tree and then compared that with their own family tree. They represented the information in tally charts, block graphs and pictograms and went on to interpret their results.

Key questions:

- How many more _____ than _____?
- How many less _____than _____?
- What is the difference between_____?
- Which family size is the largest/smallest?

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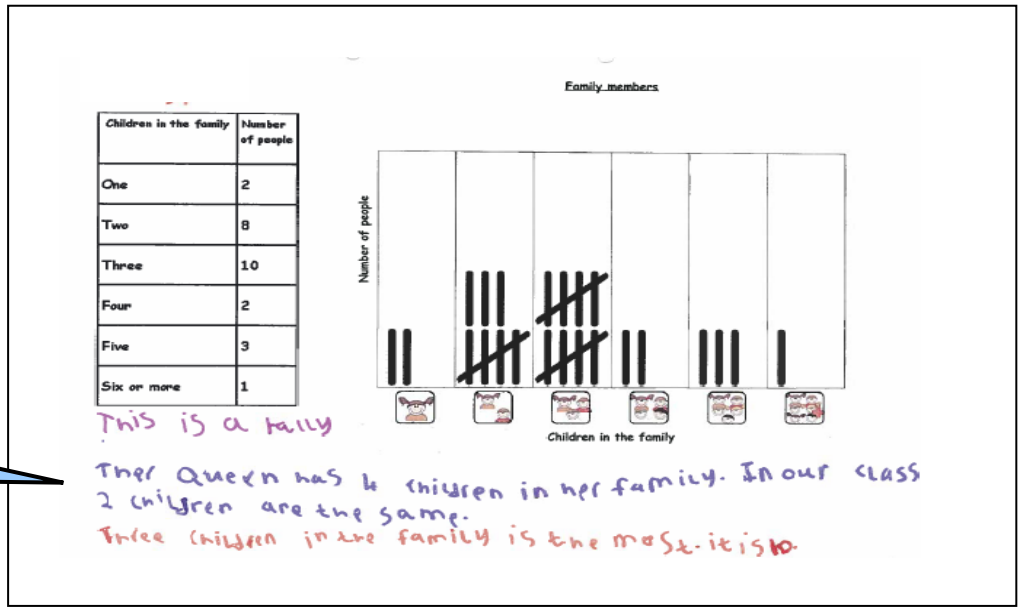
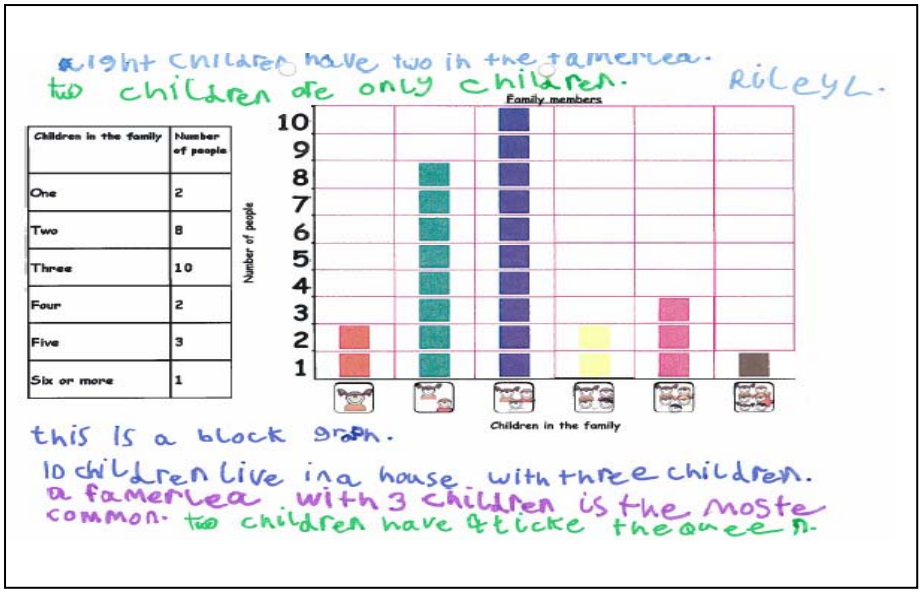
How many children have more than 1 child in their family?

24 children in our class have more than 1 child!

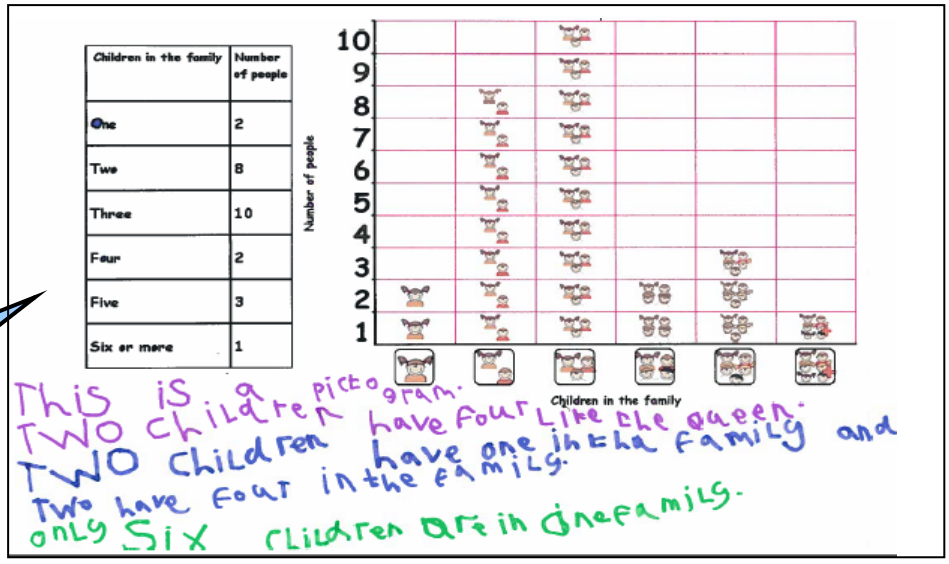




How many children do most people have?

What does the pictogram tell you about families with 6 or more children?

Only 1 child in our class comes from a family where there are 6 or more children!



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Year 2: Penguins

Area of Learning:
Knowledge and Understanding of the World

Places and People

- Begin to recognise differences between their locality and localities in different parts of the world.

Myself and other living things

- Identify some animals and plants that live in the outdoor environment.

Numeracy skills

- Count sets of objects by grouping in 2s, 5s or 10s.
- Recall 2, 5 and 10 times tables and use to work out simple problems.

Background information:
The children were researching the lives of penguins based on the non-fiction text *The Emperor Lays an Egg* by Brenda Z Guiberson (Henry Holt and Co., 2001). Through their research the children had learnt that penguins mate for life and can lay either one or two eggs.

Activity description:
The children were asked initially to estimate how many penguins they could see in the scene. They moved on to making statements about how many penguins there would be if each penguin had a partner and how many penguins there would be if each pair laid 1 egg then 2 eggs.

Key questions:

- How many penguins do you think are in the picture?
- What's the quickest way you can count them?
- If half were male, how many are female?
- How many pairs of penguins are there?
- If each penguin pair laid an egg, how many penguins would there be altogether?
- How many penguins would there be if each pair laid 2 eggs and they all hatched successfully?

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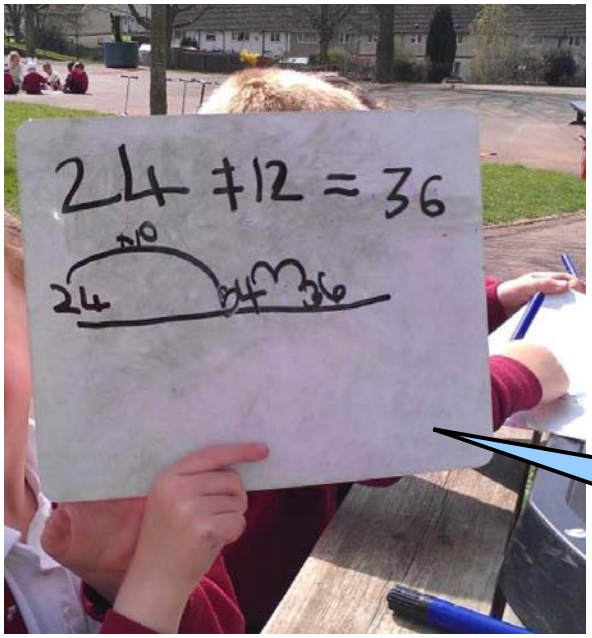
How can you find out how many penguins there are?

I can count in 2s.
There are 24.

Half of the penguins are male. How many are female?

Half of 24 is 12 . . .
12 penguins are female.

How many penguins would there be if each pair laid an egg?



24 plus 10 is 34 . . .
add 2 more is 36.
There would be 36 penguins altogether.

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Year 2: Beanstalks

Areas of Learning:
Language, Literacy and Communication Skills
Knowledge and Understanding of the World

Oracy
Experience a range of stimuli including stories, both real and imagined.

Numeracy skills

- Use mental recall of number facts to 10 to derive other facts:
  – doubling and halving (*e.g. 40 + 40*).

Background information:
The half-term theme was 'growing'. The children were being introduced to the story of Jack and the Beanstalk and we were also growing bean plants as part of our theme.

Activity description:
A set of number problems were devised through the context of the story. The children were asked what the height of the beanstalk would be in 5 days if the beanstalk grew 10m the first day and would then double in height every day. The question was simplified to 1m for the less able learners. They were provided with a table and graph to complete.

Key questions:
- How tall will the beanstalk be after 2 days?
- Will the beanstalk grow the same amount every day?
- How tall will the beanstalk be after 5 days?

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How tall will the beanstalk be after 2 days?

Doubling is adding twice. It's 2m!

Will the beanstalk grow the same amount every day?

No. It's going to get very big. I need to keep doubling.

How tall will the beanstalk be after 5 days?

Double 8 is 16 so double 80m is 160m.

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