

# Maths week – The Penguin Problem



## 'How many?' questions

- How many penguins will there be after 2 weeks? What about at the end of the four weeks? By the end of March? At the end of 6 months?
- How many penguins will there be on your birthday? What about your friends' birthdays?
- If there are 100 penguins - what date is it?
- What about 200? Or 300?
- Think of your own 'How many?' questions.

## Arranging the penguins

- How many different ways could they arrange 60 penguins? Can you record each way using multiplication? What about division? Which day would give the most different ways of organising the penguins?
- On January 15th, Dad can arrange the penguins in a pyramid. Draw the pyramid dad could make. On what other days of the year could dad make penguin pyramids? How many penguins would be in the pyramid on each of the days?
- Can you find days where you could organise the penguins into two or more equal pyramids? How big would the pyramids be? On which days could you do this?



## Penguin problem solving

- If each penguin eats 5 fish, how many penguins do I have if I need 125 fish? If each penguin needs 5 fish a day, how many fish will they have eaten by the end of the first week? What about by the end of the first month? How many in the whole year!!!
- If each penguin weighs 12kg, how much will 50 penguins weigh? How much will they weigh in lbs? How many penguins would it take to weigh the same as the average adult male Great White Shark (1,100 kg)? What about the average African Bush elephant (6000kg)? Or the average Blue Whale (140,000kg)?
- If it costs £3 per day to feed each penguin, how much will I send in the first week, month, the whole year?



#### Penguin Cubes

- Dad makes a cube of penguins on August 4th? How many penguins would have been in this cube? How many penguins could you organise into different sized cubes?
- If there were 16 penguins in the base of a cube, how tall would the cube be and how many penguins would be in it altogether?
- How many days will the family need to wait before they can organise the penguins into another cube?
- At the end of the year the family cannot organise the penguins into a cube. How many more penguins would they need to be able to organise them into a cube?

