

Numeracy

1. Life and death

1.1. Robins – chances of surviving to the following year

There are 50 male and 50 female robins all capable of breeding in a given area. They come together to form 50 breeding pairs.

Each pair will have two broods.

The average number of chicks raised per pair and per brood is 3.

How many young robins are produced and how many robins must die to support a stable population of 50 breeding pairs? We will assume that the number of male and female robins hatched is in the same ratio and that they die in the same ratio.

Adult robins will be more experienced at surviving. But their risk of dying from old age will be greater.

Assume that 40% of adults survive to the next year.

Calculate how many newly hatched robins will survive and a newly hatched robin's chances of surviving to the next year.

1.2. Cause of death not related to disease

It is very difficult to find out the reason for birds dying of natural causes. A sick bird may hide away in a bush and eventually die. As we will probably never recover its body we cannot find out why it died.

However there are other reasons why birds die.

Imagine you were able to carry out a survey in to the reasons why young songbirds died in your area. Imagine that you recorded the following results:

Reason	Number of deaths
Killed by cat	50
Killed on road	20
Killed by bird of prey	15
Trapped in a building and died of starvation	10
Other	5

Produce a pie chart to demonstrate the main reasons for birds dying in your survey.

2. Migration, distance, speed

2.1. Swallow travelling to and from South Africa

A swallow travels 6,000 miles on its journey from South Africa to the UK.

On average it travels 200 miles in a day at a speed of 20 miles per hour.

How many days does it take to fly from South Africa to the UK?

How many hours are spent flying per day?