

**Aim:** to plot the increase in numbers of red kites in Rockingham Forest

**Learning objectives:**

- To interpret tables and graphs appropriately
- To represent data in the form of a bar graph
- To understand and use measures of average

**Resources**

Copy sheet for Activity 4

Squared paper, coloured pencils, calculators

**What to do**

- Look at and discuss the table with the children.
- Why is the number of young fledged more than the number of breeding pairs?  
How many different wing tag colours have been used? How many more breeding pairs were there in 2002 than in 1996?
- If the children have experience of drawing graphs, recap the main features and then ask them to draw a bar chart, using the data provided. (They will need to understand about variable scales to be able to draw this independently. Younger or less able children could be given the axes already drawn and just draw in the bars, or could produce a pictograph, either individually or as a whole class.)
- To work out the average number of young raised per pair per year, divide the number fledged by the breeding pairs. This activity is a useful exercise in rounding numbers to whole numbers, one decimal place or two decimal places, depending on the experience and ability of the class. You may decide to use this as an extension activity or as a separate lesson altogether.

**Information**

The figures for 2001 are estimates, because the spread of the birds is now extensive, making monitoring difficult. Foot and mouth disease also made it impossible to visit all sites. In 1998, a two-colour system was introduced to help identify which re-introduction area the birds came from. Birds hatched in the Rockingham Forest are fitted with a white tag on the left wing. Another coloured tag on the right wing indicates the year they were born.

# The Progress of the Red Kite



Year	Wing tag colour	Breeding pairs	Number of young fledged
1996	white/white	1	2
1997	red/red	4	8
1998	white/green	4	9
1999	white/black	8	15
2000	white/pink	13	25
2001*	white/blue	12*	25*
2002	white/white	24	42

\* the foot and mouth disease epidemic restricted collection of data.

- Plot a bar graph to show the increase in breeding pairs of red kites in Rockingham Forest. (Year along the x-axis; number of breeding pairs along the y-axis).
- Colour each bar in the corresponding wing tag colour.
- Explain why the number of red kites is increasing in Rockingham Forest.
- For each year, calculate the average number of young raised per pair.
- Looking at your graph, what do you think will happen to red kites in the Rockingham Forest in the future?

## Teacher's notes

### Activity 5: Comparing *wingspans* of bird species found in the East Midlands

**Aim:** to draw and interpret a scatter graph

#### Learning objectives:

- To understand and use measures of average
- To represent data appropriately and interpret it
- To look at how things are suited to their *environment* (adaptations)

#### Resources

Copy sheet for Activity 5  
Calculators, tape measures  
Database or spreadsheet programme

#### What to do

- Provide each child with a copy of the activity sheet.
- Explain the term 'average' in this context and how it can be calculated. (This could coincide with other teaching of averages). Work out the first few average *wingspan* lengths together. Then the children can work individually, in pairs or with adult supervision, depending on their experience and ability.
- Using a database program on the computer, the children can format the data into a spreadsheet, and then produce a scatter graph. It may be useful to explain what a scatter graph is if the children have not experienced them before.
- Experience of percentages is needed to work out how big the wings are in relation to the rest of the body.

#### Extension activity

- How big are the red kite's wings in relation to the length of its body?
- How big are your arms in relation to your height? (If you can, write two sets of measurements and work out the percentage)
- Work out how big the wings are in relation to the body for the other birds.

# Size of the Matter



Comparing *wingspans* of bird species found in Rockingham Forest.

Species	Body length	Wingspan	Average
red kite	60–65 cm	175–195 cm	
buzzard	46–58 cm	110–132 cm	
rook	41–49 cm	81–84 cm	
tawny owl	37–43 cm	81–96 cm	
great spotted woodpecker	23–26 cm	38–44 cm	
nuthatch	12–14 cm	16–18 cm	
willow warbler	11–12 cm	17–22 cm	
robin	14 cm	20–22 cm	
treecreeper	12–14 cm	18–21 cm	
jay	32–35 cm	54–58 cm	
great tit	13–15 cm	22–55 cm	

- Find the average *wingspan* for each species
- Use a database program on the computer to produce a scatter graph. (Body length x-axis, *wingspan* y-axis).
- Which bird has the smallest *wingspan*?
- Which bird has the smallest body length?
- Which bird has the longest *wingspan*?
- Which bird has the longest body length?
- Which birds have a *wingspan* of over 40 cm?
- Do birds that have a similar *wingspan* also have a similar body length? Give reasons and examples with your answer.
- What is the relationship between *wingspan* and body length?