

OWLS



SPRING 1988

MICROSCOPE

Newman College with MAPE

Introduction

This pack of resources represents a new venture for MAPE. The program 'Lost Owls' was the catalyst for collecting together a variety of resources all relating to owls. We have included a range of suggestions for activities although we acknowledge that most teachers will generate ideas of their own. A list of organisations which are involved in owl preservation is included in the booklet but we haven't been able to list all the places where you can go and look at owls. There is likely to be somewhere near you!

In this pack you should find the following:

Software:

Lost Owls - a program in three parts

Two overlays for the concept keyboard, and two description sheets.

Ourfacts - a small database on owls

(the disc contains the program and the database. The latter is a subset of the information contained on the data sheets). A GRASS file on owls (G.Owls) is also on the disc - this contains the full information on the data sheets. This data may be typed into any other database that you may be using.

Please note that the discs provided are 'flippies'. This means that they can be turned over and re-inserted in the drive.

Information sheets; most of which form part of the A4 Owl Facts booklet

Facts about Birds (RSPB)

Design for a Tawny Owl box (RSPB)

Project Guide Information (RSPB)

Owl Facts

Feather Facts

Resource list

Useful addresses

How can I help owls?

Instructions for making a ceramic owl

Source information for the owl database

Birds in maths 1 & 2 plus a map of Upborne

Drama - Mrs Owl

Owl activities (curriculum ideas)

Young Ornithologist Club leaflet

6 Postcards:

Snowy Owl, Little Owl, Barn Owl, Long-Eared owl, Tawny Owl, Short-Eared Owl (J.Arthur Dixon)

4 Postcard size prints:

Barn Owl, Tawny Owl, and two prints of baby barn owls at 4 weeks old (from Michael Bassett)

Posters: Night Shift (RSPB)

Owls (from the Medici Society)

Story Book: The Owl Who Wanted To Fly

Lost Owls (The software)

This program is designed for use with very young children to promote both discussion and problem solving skills. It may also be useful for older children as a starting point for other work on owls. The first menu offers you the choice of working with the ordinary keyboard or the concept keyboard.

There are three options to the program. The first is an adventure story at two levels. At level 1 there are five scenes, at level two there are nine scenes.

The basis of the story is that the three baby owls have mischievously left the nest on their first flying lesson. After a hazardous landing they are tired and exhausted and a long way from the nest. Your children have offered to help the mother owl find her three babies. To move to a new scene you simply press one of the arrow keys. The indicator on the screen in front of you means that you can move in the direction of a thick arrow but not in the direction of a thin arrow. The children must look for a baby owl in every scene. If they find one, press the red function key, f3, to return the baby to its mother's nest. The game is completed successfully when the mother is sitting on the branch of the tree with the three babies beside her.

In level two the program may be used to introduce the basis of map making. Even with only nine scenes a map can be useful.

The second option, 'Owl Talk', may be used to generate discussion with the group /class. The user may select any of the scenes simply by pressing the appropriate key. The available scenes are as follows:

- a Flying owl
- b Baby owl
- c Main tree - whenever you choose this option, pressing the red function key, f3 , will then position a baby owl on the branch, up to a maximum of three.
- d Lane
- e Forest
- f Pond
- g Farm
- h Church
- i Barn
- j Garden
- k Village
- m Main menu

In each scene there are a number of other possibilities:

- f1 alternates between dusk and night
- f2 alternates between dusk and day
- f3 will put a baby owl into the picture (a maximum of two per picture)
- f4 will put an animal into some of the scenes:
 - a cat in the village
 - a duck on the pond
 - a cow by the barn
 - a rabbit in front of the farm
 - a fox in the lane
 - a fox in the garden
 - a hedgehog in the forest

The third choice is the story option. If you select "Make a story", the program presents the user with a blank page. By selecting any of the scenes mentioned above, or the extra function keys, you can create your own story. The sequence will appear in order on the screen. Delete will enable you to make alterations. When you have finished press Return and you will be asked for a file name and prompted to put a new disk in the drive. There is no room on the master disk to hold story files. If you then select the 'Play a story' option, and load your file (from the appropriate disc), the sequence of pictures will be shown on the screen, each one changing in response to a press of the Space Bar.

This offers children the facility to make and tell their own stories. They can concentrate on the telling of the story, only using the Space Bar when they want to move to the next scene.

Ideas using other resources

Database ideas - Ourfacts

Ourfacts is an introductory database which includes a graphics facility. The data file is called 'Owls'. This file only includes part of the information on the Owls data sheets. You may, if you wish, type the full set of data into any other database program (this has already been done for GRASS and the file is on the disc (G.OWLS)).

The list of questions below gives some indication of the investigations that could be carried out using Ourfacts or GRASS

Can you identify the 6 British owls?

What British owl makes the sound ke-wik?

What is the average number of eggs laid by owls?

Can you identify owls that are likely to be seen or heard in mountainous areas?

Do any British owls have a wingspan greater than 1 metre?

Are any British owls heavier than 1 kilogram?

What European owls (including British) are you likely to see or hear in woodland?

If you heard an owl mewing during the day over a British farm what is it most likely to be?

The following investigations can be carried out by looking at the graphs.

Do the larger owls produce the most eggs?

Do the heaviest owls have the longest wings?

Show the weight of owls in the form of a histogram.

Other ideas:

Using the program Tray or Infant Tray, prepare a piece of text relating to owls. The text should be prepared so as to focus attention on 'owl vocabulary'. Infant Tray and Create are on the disc provided, together with two files, which you can use as a language stimulus, one is called 'Rusty' and the other 'Bluetit'. The Create program on the disk will also allow children to make up their own text.

Newsbulletin (MAPE Tape 4) - this can be used for producing an electronic magazine related to owl activities. Similarly, Front Page Extra can be used to produce a printed magazine.

Make Your Own Adventure (the BBC version is generally obtainable from your LEA Computer Centre, the 480Z version from the MEP Infant Pack).

This program will allow you to create your own simple, textual owl adventure games.

Videos.

The RSPB have two video cassettes concerning owls. One is entitled the 'Short-Eared Owl' (running time 26 minutes) and the other is 'Talons' (running time 21 minutes). The hire charge is five pounds per video for 14 days hire (including time in transit) - the charge includes first class return postage and VAT. If you take advantage of this service, please mention the MAPE Owl Pack as being the source of your information. Further details from RSPB Video Department, The Lodge, Sandy, Bedfordshire (0767 80551 ext 2033)

European Owls

	Barn Owl	Scops Owl	Eagle Owl	Snowy Owl	Hawk Owl	Pygmy Owl	Little Owl	Tawny Owl	Ural Owl	Great grey Owl	Long-eared Owl	Short-eared Owl
Latin name	Tyto	Otus	Bubo	Nyctea	Surnia	Glaucidium	Athena	Strix	Strix	Strix	Asia	Asia
Does it occur in Britain	Yes	Very Rare	No	Rare	Very rare	No	Yes	Yes	No	No	Yes	Yes
Length (cm) (male)	34	19	67	60	38	16	22	38	61	65	35	37
Wing Span (cm) (male)	89	58	174	156	78	35	56	100	129	146	95	103
Weight (grams) (male)	315	78	2813	1875	330	60	168	480	750	927	289	355
Eggs - How many	4-7	4-5	2-4	4-10	6-10	4-7	3-5	2-5	2-4	3-6	3-6	4-7
Nest - Where?	Barns Old trees	Old trees Buildings	Cliffs Old trees	On ground	Old trees	Old & white	Old trees	Old trees	Old trees	Trees	In trees or on ground	On ground
Main colour	White & Buff	Brown-grey	Brown to buff	White	Brown & white	Brown	Brown	Rufous	Grey-white	Brown-black	Grey-brown	Tawny & buff
Other colours		Rufous		Brown	Black	Buff-white	White	Grey brown	Brown	Grey-white		Brown
Beak - shape	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked
Feathery "ear" tufts	No	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes
Legs - How long?	Medium (feathered)	Medium (feathered)	Medium (feathered)	Short (feathered)	Medium (feathered)	Medium (feathered)	Medium (feathered)	Short (feathered)	Medium (feathered)	Medium (feathered)	Medium (feathered)	Long (feathered)
Claws	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons
Main Food	Mammals Birds (Insects)	Insects	Mammals	Birds Mammals	Mammals Birds	Birds Mammals	Insects	Mammals Birds (Insects)	Mammals Birds	Mammals	Mammals Birds (Insects)	Mammals Birds (Insects)
Song	Shriek (whistle, snore)	Whistle	Boom	Harsh Croak	Chatter	Whistle	Mewing	Ke-wik and Hoot	Barking	Boom	Moan	Barking Yelp
Habitat	Farms Ruins	Woods Parks	Mountains Woods	Tundra	Conifer Woods	Conifer woods	Farmland	Old woods, Parks	Forests	Conifer woods	Conifer woods	Moors Marshes
Hunts by day or night	Night and day	Night	Night Dawn & Dusk	Day	Day	Partly day Night	Day Dawn & Dusk	Night (& evening)	Night partly day	Partly by day	Night	Day

World Owls

	Common Grass Owl	Spotted Screech Owl	Eastern Screech Owl	White-faced Screech Owl	Great Horned Owl	Spotted Eagle Owl	Pel's Fishing Owl	Pearl-Spotted Owlet	Boobook Owl	Powerful Owl	Burrowing Owl	Saw-whet Owl
Latin name	Tyto	Otus	Otus	Otus	Bubo	Bubo	Scotopelia	Glaucidium	Ninox	Ninox	Speotyto	Aegolius
Where does it occur in the world	Africa	Central America	North America	Africa	N & S America	Africa	Africa	Africa	Australia	Australia	N & S America	North America
Length (cm) (male)	35	18	22	26	48	35	56	19	33	63	25	18
Wing Span (cm) (male)	95	43	53	62	122	120	160	42	65	125	56	47
Weight (grams) (male)	320	85	133	160	1490	751	2142	81	284	650	148	99
Eggs - How many ?	3-4	4	4-5	2-3	2-3	2-3	2	3	2-3	1-2	7-9	5-6
Nest - Where?	On the ground	Hole in tree	Hole in tree	In old nests of Hawks	In old nests of Hawks	Cliffs or hole in tree	Hole in tree	Hole in tree	Hollow in tree	Hollow in tree	In a burrow	Hole in tree
Main colour	Dark Brown Pale Yellow	Grey	Rust Brown	Sandy-Brown	Brown	Grey	Reddish Brown	Grey-Brown	Brown	Dark Grey-Brown	Brown	Dark Brown
Other colours	White	-	Grey	Grey	White	Buff	Black	White spots	Red-brown	White	White	White
Beak - shape	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked	Hooked
Feathery "ear" tufts	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Legs - How long?	Long (unfeathered)	Medium (feathered)	Medium (feathered)	Medium (feathered)	Medium (feathered)	Medium (feathered)	Long (unfeathered)	Medium	Medium (feathered)	Medium (feathered)	Long (Unfeathered)	Short feathered)
Claws	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons	Talons
Main Food	Mammals	Mammals	Mammals	Insects Mammals	Mammals	Insects	Fish	Insects Mammals	Mammals	Mammals	Insects Rodents	Insects
Song	Screech	Hoot	Hoot & Trill	Hoot	Hoot	Hoot	Boom	Flute-like up & down scale	Like a Cuckoo	Hoot	Like a dove	Rasping like filing a saw
Habitat	Grasslands	Mountain Forest	Woodland	Savannah	Forest	Savannah	Rivers Lakes	Savannah	Forests	Forests	Prairies	Dense woods
Hunts by day or night	Night	Night	Night	Night, sometimes day	Night	Night	Day	Day and Night	Night	Night	Evening and Night	Night

Owl Facts

Eyesight:

Owls' eyes face forwards, this gives them a fairly narrow field of vision, but most of this is covered by both eyes. This gives them binocular vision.

Owls cannot see when there is no light at all but because owls' eyes have 25 times more light gathering power than human eyes they can see in what we regard as pitch blackness.

Owls' eyes are so large that they bulge from their sockets and they cannot be moved. They have to turn their heads in order to look to the right or to the left. Owls can rotate their heads through almost 360 degrees.

To judge distances owls bob about and pivot to get several viewpoints.

Owls blink with the upper eyelid. Most birds blink with the lower eyelid. Humans blink with the upper ones.

Owls have little or no colour vision.

Hearing:

Owls do not have 'proper' ears (they would produce too much wind resistance).

Owls' ear tufts are not ears at all, they are extra long feathers which are used for giving signals to one another.

Owls' ear openings are concealed just behind their eyes. They are covered with plumage. These openings may be asymmetrical. For example the right ear of the tawny owl is larger than the left. This may help in locating sounds.

Owls' ears are tuned to pick up high frequency notes such as the squeaking of a mouse.

Flying:

Nocturnal owls can fly silently because their flight feathers have filmy edges which muffle the beat of the wings.

Sleep:

Owls sleep in a crevice or a natural cavity or even in the ground.

Owl sounds:

An owl has an alarm call, a flight call, a courtship call and a territorial call. These have been described as hoots, screeches, wails, trills, snorts, gobbles, growls and hisses.

Owls clap their beaks to show fear or anger.

Nesting:

Owls are cavity nesters. They choose places like hollow trees, old crows' nests, cliff ledges, or ground burrows. They use little or no nesting material.

Eggs:

Eggs are white, almost spherical. The number of eggs varies from 1 to 7 or more .

Eggs are usually laid at intervals of a few days.

Both parent birds may incubate the eggs. Both parents feed the young.

The incubation period is about 4 weeks.

Young birds:

Young birds are blind and covered with a whitish down.

The fledgling period varies from four to ten weeks.

Young birds remain in the vicinity of the nest for some time after they can fly.

OWL FAMILIES

There are about 133 species of owls, placed in two families in the Order Strigiformes.

Barn owls, grass owls and bay owls are members of the Tytonidae family.

Their facial disc is heart-shaped. They have no ear tufts. They have comparatively long legs which are feathered down to the feet.

MAPE acknowledges the help of 'Owl Prowl' and London Zoo (Animal Leaflet 34) in compiling this fact sheet.

Feather Facts

There are feathers for flying and feathers for insulation. The pin feather is for flight. The down feather is for insulation.

Most feathers on a bird's body are a combination of the two types because they are downy at the base getting firmer towards the top.

Down feathers:

These are found close to the body of the bird. They have a short quill. They are very soft and fluffy. The down feathers keep a bird warm by trapping air between the body and the outer feathers. The air is warmed by the body. In very cold weather larger quantities of air may be trapped when the bird fluffs out its feathers.

Eider duck down is popular with bedding manufacturers for use in quilts and pillows.

Contour feathers are those which combine both down and pin feathers. They can be used as insulation. They can also be used to alter the bird's surface shape. The more efficient the shape the more streamline the flying.

Birds also alter shape in order to defend territory or for courtship displays.

Owls legs are feathered. This helps to reduce the amount of noise they make when flying.

Pin feathers:

Pin feathers form the wings, tail, and outer body covering.

They have relatively long, strong, flexible quills. They can bend without breaking.

The 'feather' part is made up of many barbs which are attached to one another by barbules which have tiny hooks along their length and link together (a bit like a zip or velcro fastening). Thus the feather remains neat and smooth for efficient flying.

The most hard worked feathers on a bird are those on the wings and the tail. They are much more strongly constructed than the others with strong quills and many more barbules than on the other feathers. The shape of these feathers is highly specialised to accommodate flying and hunting characteristics.

Wing feathers:

The bones of a bird's wing are similar to those of a human hand and arm. All the flight feathers are attached directly to the bones and muscles of the wing.

Primary feathers, asymmetrically shaped for powered flight, are attached to the 'hand' end of the wing.

Secondary feathers, adapted to give lift for gliding, are attached to the 'forearm' part of the wing.

Contour feathers called wing coverts cover the remainder of the wing. These provide a smooth, streamlined shape.

Tail feathers:

These are large and strong. They are usually symmetrical, straight and flat.

The tail acts as a rudder and a brake. The feathers are controlled by muscles. It can be moved up and down, from side to side, tilted, fanned or closed.

Feather colour:

Plumage colour may make a bird conspicuous or it may help it to hide. The latter is called cryptic colouration.

Feathers are coloured in two ways: some reflect the light in different ways, others contain pigment or dye.

Feather care:

Birds bathe in water or in dry dusty soil in order to remove dirt or parasites. The birds fluff out their feathers and shake themselves vigorously.

Feathers which have become 'unzipped' are put back in line as the bird runs the bill along them.

Owl feathers:

Owls' primary feathers have soft fringes of unconnected barbs along their outer edges. These together with the thick pile on the feather surfaces allow the bird to fly almost silently.

INFORMATION ABOUT BIRDS

_some of your questions answered.



Origin and Evolution

Birds are the only vertebrates, except bats, which have true flight. Vertebrates are animals with backbones. They probably evolved from small light-boned warm-blooded reptiles, perhaps dinosaurs, that ran on their hind legs. The first true bird appeared in the geological age called Cretaceous, about 100 million years ago. They still have some reptilian characters, e.g. scales on their legs and the egg-laying habit. Archaeopteryx is a famous fossil, found in Bavaria, which shows features of both birds and reptiles. It is 130 million years old.

Distribution



Because birds are 'warm-blooded' they are able to live in all parts of the planet from the Arctic (little auks) to the Antarctic (penguins). Some hardly ever come on land except to nest e.g. puffins spend most of their time out at sea and swifts remain almost always in the air. They can live in every habitat except the highest mountains and areas of perpetual ice or desert - they are even seen flying over these inhospitable areas.

Flight

This enables them to range widely in search of food and to escape predators easily. Not all birds can fly e.g. the flightless cormorant of the Galapagos Islands which has no predators and abundant food in the water. It evolved from ancestors which could fly, but the ostrich and similar birds probably have no flying ancestors. They are called 'ratites' and can run very fast instead of flying.

Adaptations to Flight

They need to be very light, so they have hollow bones with air inside. Over the years they have lost heavy structures such as teeth. They have no bladders so do not carry around extra water - the white part of bird droppings is their equivalent of urine.

Because they have no teeth, species like pigeons have a gizzard containing small stones which crush the food. Almost all birds eject pellets from their stomachs through their mouths, so that indigestible bits of food are not carried around unnecessarily. These are very large and obvious from birds of prey.

Flight needs a great deal of energy. Air passes twice through the lungs with every breath in and out so that all available oxygen can be used. Their body temperature is several degrees higher than a human's.

Senses

The sense of sight is very good and birds have huge eyes in comparison with their size. The tawny owl has the same size eyes as a human! They see in colour, and some like owls, can see very well in dim light. (No animal can see in pitch darkness).

Some birds like woodcock have their eyes placed on the sides of their heads so that they can see as well backwards as forwards, although they do not have very good 'stereoscopic' (3D) vision. Birds of prey have excellent stereoscopic vision and a buzzard sees things as humans do when looking through 8X binoculars! Most birds probably have little sense of smell or taste, but their hearing is good. Their ear openings are just behind their eyes, and covered in feathers.

FACTS ABOUT BIRDS

There are about 8,650 species in the world, and there may be something like 100,000 million individual birds.

Largest: Ostrich, up to 2.74 m in height (9 ft) and 156.6 kg in weight (345 lb).

Largest Flying: Heaviest, Kori bustard from Africa & swan - both up to 18 kg (40 lb).

Largest Wingspan: Wandering albatross up to 3.96 m (13 ft).

Smallest: Helena's or bee hummingbird from Cuba, weight 2 g (0.07 oz).

Total length from tip of beak to tip of tail 58 mm (2.28 in).

Smallest in Britain: Goldcrest, 90 mm (3.5 ins) in total length & weighing 5.7 g.

Most Abundant in Britain: Blackbird & house sparrow 10,000,000 of each in early spring).

Rarest in Britain: Snowy owl.

Fastest Flying in the World: Spine-tailed swift (USSR) 106.25 m.p.h. (171 km/h).

Largest Egg in the World: Ostrich = volume of 2 dozen hens eggs, it requires 40 minutes boiling to cook. Weight up to 1.78 kg (3.88 lb).

Largest Egg in Britain: Swan, weighs up to 368 g (13 oz).

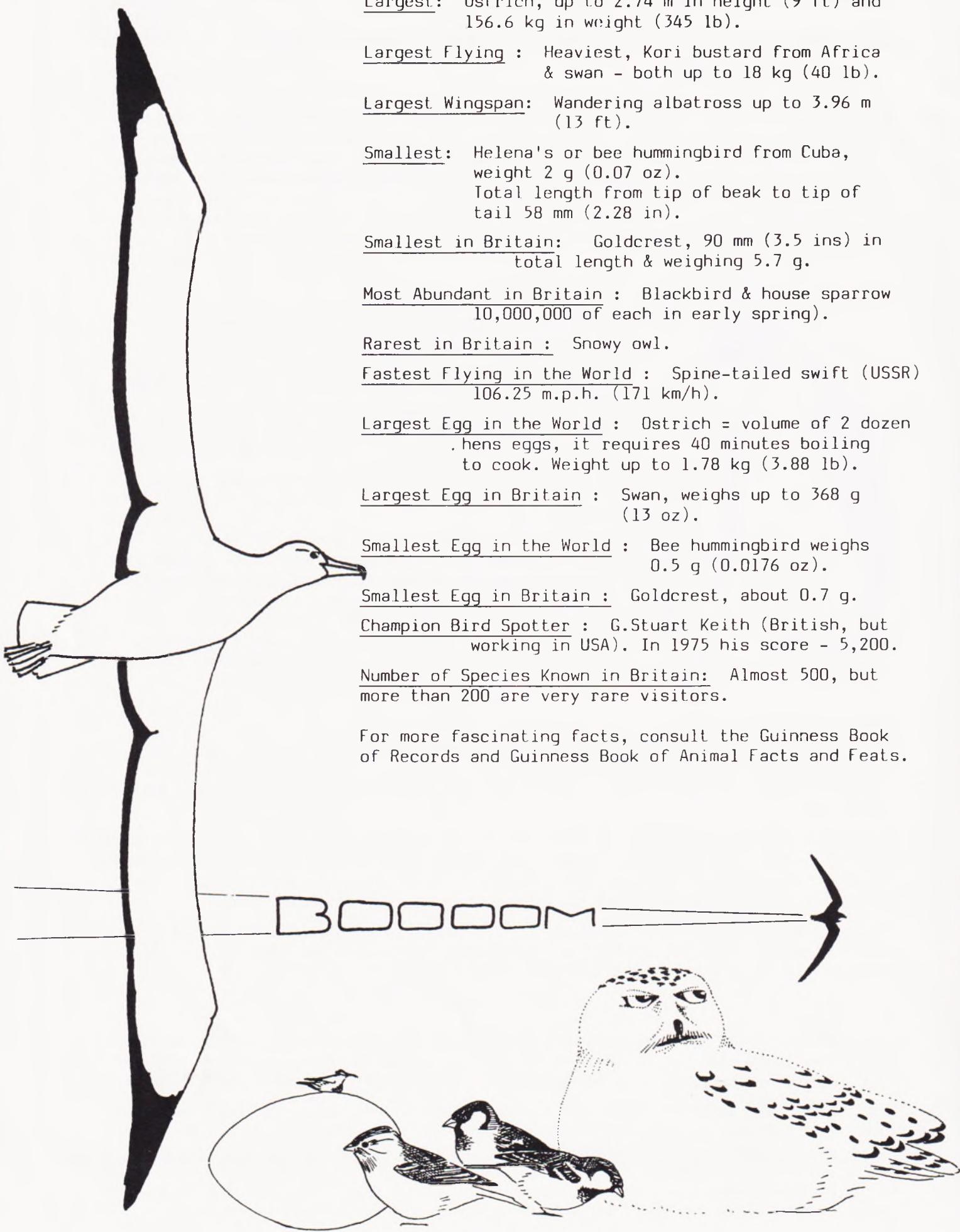
Smallest Egg in the World: Bee hummingbird weighs 0.5 g (0.0176 oz).

Smallest Egg in Britain: Goldcrest, about 0.7 g.

Champion Bird Spotter: G. Stuart Keith (British, but working in USA). In 1975 his score - 5,200.

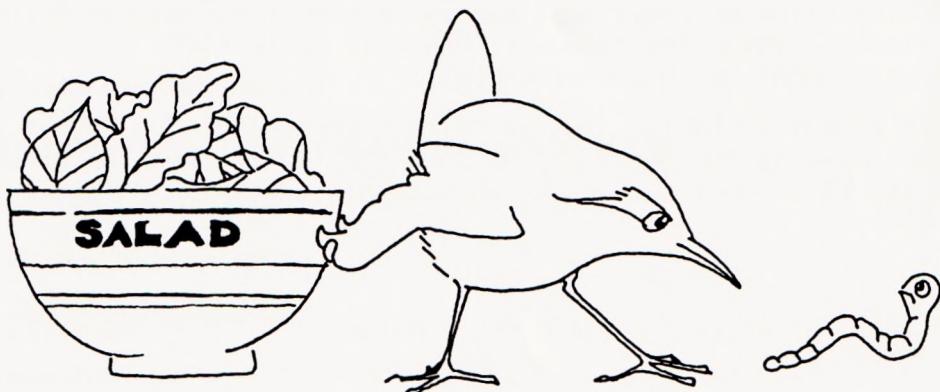
Number of Species Known in Britain: Almost 500, but more than 200 are very rare visitors.

For more fascinating facts, consult the Guinness Book of Records and Guinness Book of Animal Facts and Feats.



Feeding

Birds need very high energy foods, so few of them eat leaves or grass which require long digestion time and do not contain much energy. Instead they eat seeds and berries and other animals like worms, crustaceans (e.g. shrimps), insects (especially the young or larvae) and many others including small mammals such as voles. They also eat eggs and other birds. They are able to use such a wide variety of food because they have so many different shapes and sizes of beak from the very long curved bill of the curlew which probes soft mud for water snails and other animals, to the wide fringed bill of the shoveler duck, used for sifting small animals and plants from water, to the wide short insect-catching beak of the swallow.



Feathers

These are unique to birds and are made of keratin, the same material found in hair, claws and hooves. They not only provide a large surface to catch the air, but keep the body warm, streamline it, camouflage it, advertise it and protect it from damage. Feathers have many other functions - the sand grouse carries water in its breast feathers from an oasis to its chicks!

Behaviour

Most behaviour is instinctive i.e. inherited, and is the same in all members of a species. It can often be used as an aid to identification. Behaviour can be very simple like feather preening or dust bathing, or very complicated like courtship rituals and migration. Birds can learn, some learn to sing by hearing adults, and feeding is learned by trial and error. Intelligent behaviour is shown by some e.g. tits learning to open milk bottles and match boxes to obtain food.

Breeding

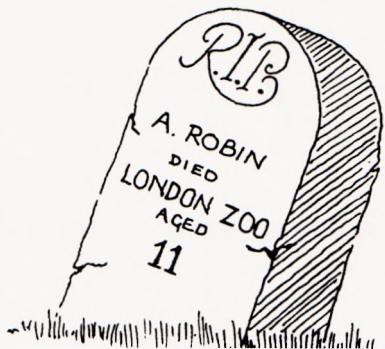
All birds lay hard-shelled eggs, though some, like albatrosses, lay only one every two or three years. Pheasants may lay 20 or more in one clutch. The eggs are fertilised by the sperm of the male bird, inside the female, while they are still forming. The white of the egg, and the shell, are then added before laying.

Not all birds build nests. Falcons lay their eggs on bare ledges or use other birds old nests. Puffins and shearwaters use old rabbit burrows or dig their own. At the other extreme, long-tailed tits make beautiful elasticated nests (spiders silk makes them elastic) with up to 3000 feathers woven into them!

In some species both parents share all up-bringing activities, but in mallard ducks the female does all the incubation and care on her own. The female phalarope is more brightly coloured than the male and leaves the eggs and young entirely to her mate after laying. Incubation time varies, but generally the larger the bird and eggs, the longer time it takes to hatch.

Lifespan

Most birds live less than one year, but if they survive their first winter some species live into their teens and twenties. Garden birds usually live 2-3 years at most.



Conservation and Protection

Birds need protection from man's activities. Perhaps the most important part of conservation is protecting birds' habitats from building, farming and pollution. Of course humans need houses and food, but there are ways of doing things so that we all get our share. It is when humans start taking more than their share that things go wrong for other wild life, including birds.

Some birds, like birds of prey, need special protection from egg collectors and people who take the young for falconry. Fines of up to £1000 and more have been given to people caught for these offences.

All birds are protected by law, but in certain cases licences may be issued or permission given to the owner of the land for 'sport' such as grouse shooting or the killing of such pests as wood pigeons which damage crops.

The R.S.P.B. Book of British Birds	by P.Holden Sharrock, Burn	<u>Pub.</u> Macmillan.
The AA/Readers Digest Book of British Birds.		<u>Pub.</u> Drive Publications.
Birdlife of Britain.	by P.Burton, P.Hayman.	<u>Pub.</u> Mitchell Beazley.
Bird Life.	by D.Elcome.	<u>Pub.</u> Macdonald.
Spotters' Guide to Birds.	by P.Holden.	<u>Pub.</u> Usborne.

There are also project guides to many topics available from the R.S.P.B. Details from the Education Department.

BIRDS ARE AMAZING !

For young people, the best way to find out about birds is to join the R.S.P.B.'s Young Ornithologists' Club.

THE YOUNG ORNITHOLOGISTS' CLUB

The Young Ornithologists' Club is the junior section of the Royal Society for the Protection of Birds. It is the only national organisation for birdwatchers aged 15 years and under.

For further information about either the R.S.P.B. or Y.O.C. write to The Lodge, Sandy, Bedfordshire.
SG19 2DL



Owl Activities

Ideas for classroom activities

The following ideas are offered as starting points:

Art work

Mobiles: coiled paper owls, food chains.

Collage: using feathers and found items, dried foods and seeds, material etc.

Sculpture: wire, papier mache, paper.

Puppets: paper bag, toilet roll, shadow.

Pottery: ceramic owls (see extra sheet).

Carving: plaster of paris owls.

Painting: night sky mural (town and country), wax resist night pictures, flying bird symmetrical blot pictures, stencils and spray paint, 'lost' posters.

Colouring: pictures with hidden owls.

Masks: owls, rodents.

Printing: potato print owls, sponge printed backgrounds.

Cutting out: black trees against a one colour background. A wood like an advent calendar where windows open in the trees to show woodland creatures.

Decorating eggs

Maths

Work on size and weight.

Symmetry and reflection.

Investigate the time children spend doing various activities, compare with owls and other creatures.

Logo

This listing is in Logotron Logo. The procedure draws a curve. Try CURVE 10 10 3.

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TO CURVE :N :LENGTH :ANGLE  
REPEAT :N [FD :LENGTH LT :ANGLE]  
END
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Language

There are several programs which can be adapted to include information about owls:

Front Page Extra (MAPE 3)
Tray/Create (and Infant Tray) (MEP Language and Infant Packs)
News Bulletin (MAPE 4, BBC only)
Wordplay (MEP Language Pack)

Music

Match rhythms to owl sounds and owl cries, explore night and day sounds, pitch and volume.

Music 1: Compose (The Shell Centre, University of Nottingham, NG7 2RD, \$12.00) enables you to create your own sequences of sound.

Hearing games: use lots of soundmakers and get the children to identify which is being played (blindfolds are useful).

Science

Feed the birds with a range of food cakes. Record consumption. (See enclosed maths activity sheets.)

Investigate feathers and flight, e.g. make a gliderbird using actual feathers and small pieces of modelling clay.

Explore waterproofing.

Investigate owl pellets (see enclosed RSPB booklet)

Look at beaks and claws.

Investigate nests and nest building. Look at homes.

Study diet and the relationship between diet and health.

Explore what is meant by 'the survival of the fittest'.

Find out about creatures who use sound for direction finding.

Investigate skeletons, skull structures etc.

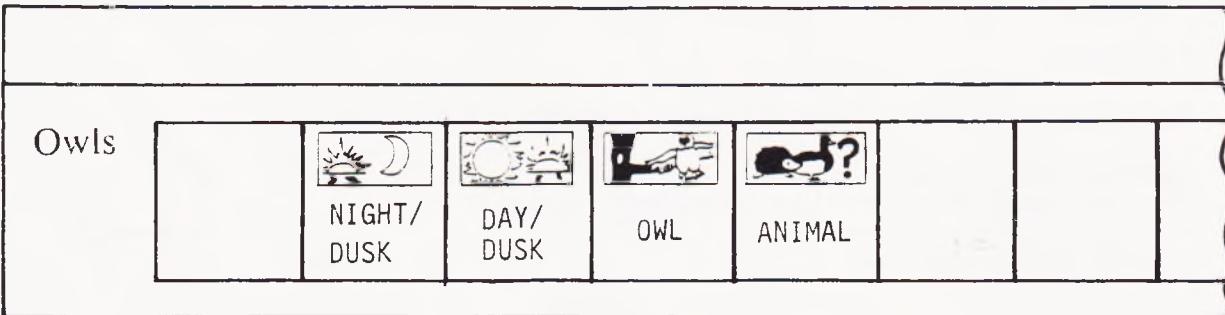
Investigate keeping warm.

Dance/Drama/PE

Night time explorations, guided by sound.

Owl flight and landings.

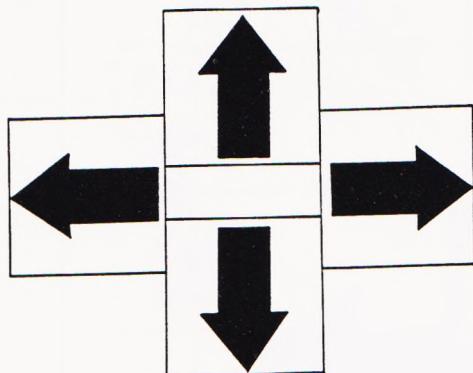
Owl actions, e.g. hovering, swooping, landing, taking off, drying damp wings, stretching, blinking, moving head, opening and closing talons, etc.



Lost Owls - concept keyboard help sheet



Sound on/off



Direction indicators for the adventure game



To select option 1 or 2 from the initial screen display



To alternate between night and dusk



To alternate between day and dusk



To position a baby owl:

- i) on the main tree in 'The Adventure'
- or ii) on any of the scenes in 'Talk about Owls'



To position an animal on any of the scenes in 'Talk about Owls'



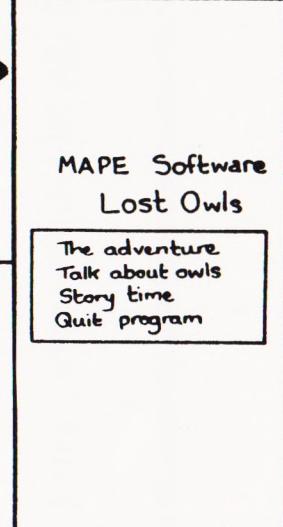
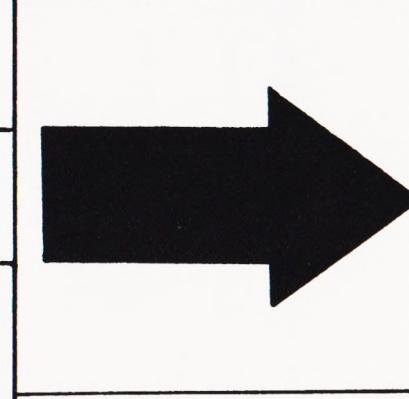
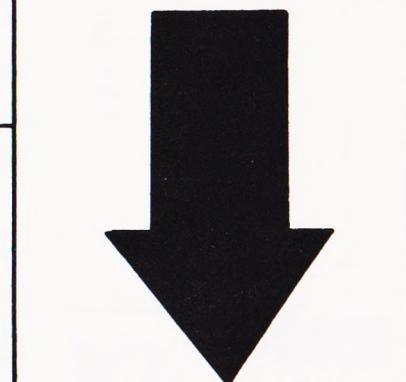
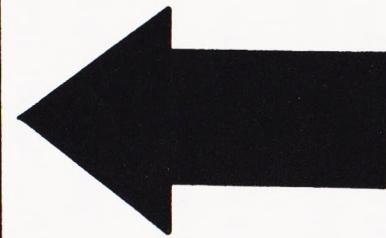
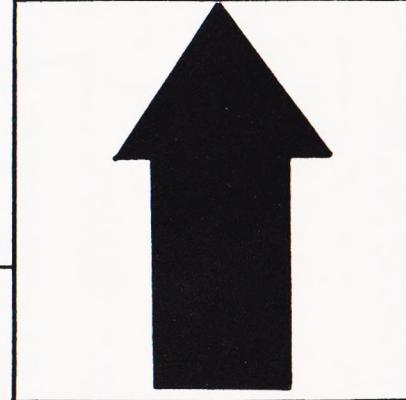
Return



Delete

Lost Owls

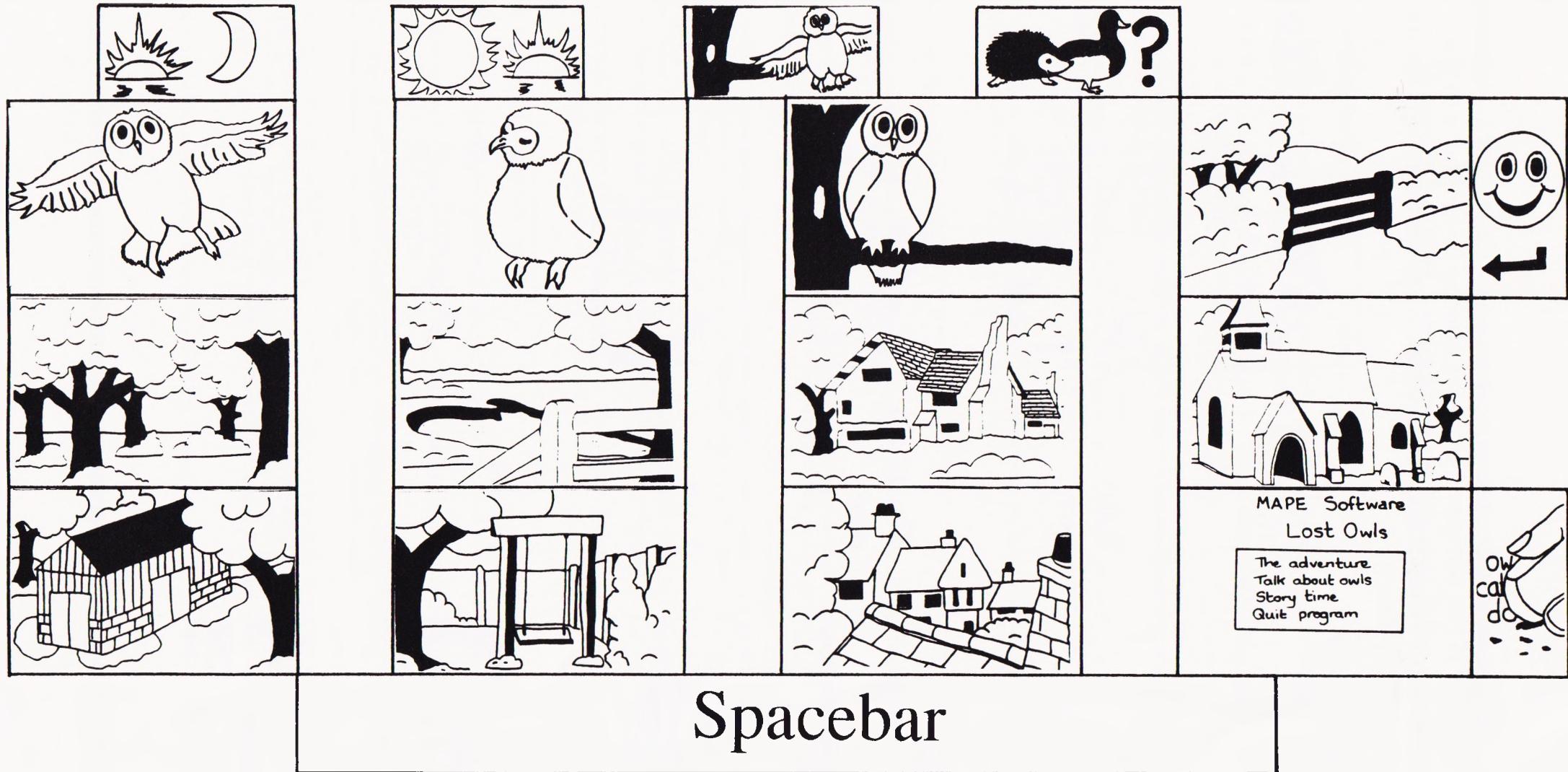
(The Adventure)



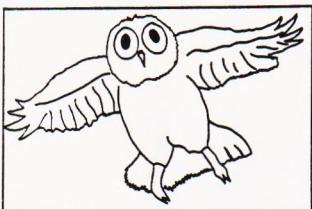
Spacebar

Lost Owls

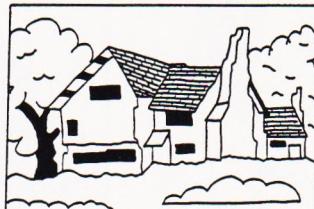
(Talk about owls and Story time)



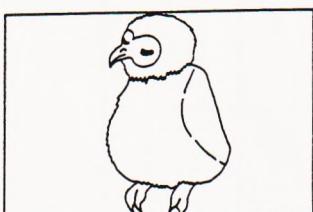
Note that if the options 2 or 3 are chosen in response to the initial menu, then it will be necessary to swap overlays on the concept keyboard



Flying owl



Farm



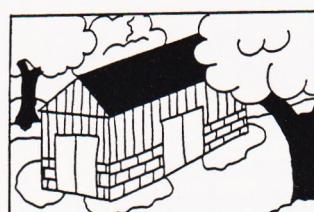
Baby owl



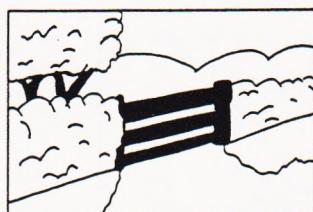
Church



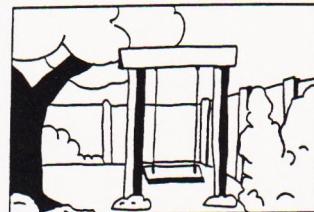
The main tree



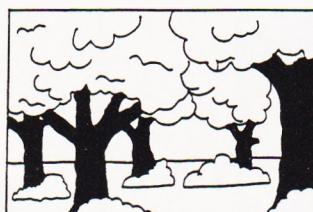
Barn



Lane



Garden



Forest



Village



Pond



The main menu

Birds and mathematics 1

Counting birds at a variety of foods

Set up a bird table or a feeding station outside the classroom window. This should be in a position where the children can sit quietly and observe the birds coming and going.

Offer the birds a variety of foods, such as peanuts, suet, seeds, bread, cooked potato and cheese. Each food should be in a separate container, such as a shallow margerine tub.

- a. Treat all species of birds as just units for counting, and arrange observations over a thirty minute period. Count the number of birds on each different kind of food. This might well be done as a team activity, with a different team responsible for each food .
- b. Keep similar records of the food preferences of different species of bird, for example robin, blue tit, greenfinch etc. As your records accumulate, you will gain a clear picture of which foods the birds like in preference to others. Why do they differ?

Changes in the weather alter the demand for particular foods. By repeating this count several times you can discover which foods are in favour under different weather conditions.

Estimating numbers (flocks of birds)

It can be quicker, easier and often nearly as accurate to estimate the number of birds in a flock rather than to try and count them. This is particularly true for large flocks.

The ability to estimate is a skill worth acquiring, particularly because it embodies the principle that what is "correct" need not be "exact". A flock may be correctly estimated at 200 birds, and the fact that it really contains 195 or 207 birds is quite unimportant in this context.

You can practise in the classroom using cards with different numbers of bird shapes drawn on each. By setting out the cards in different combinations, and changing from one to another fairly quickly, the children can gain skill and confidence.

For real bird flocks, the ornithologist's technique is to count 10 birds in the flock, and then estimate how many times the amount of space taken up by the 10 birds would fit into the whole flock.

Actual estimating will show that different species tend to form different-sized flocks, albeit with many variations, and that flock sizes change with the seasons and time of day.

Weighing the amount of food eaten by birds.

When feeding birds, it is relatively easy to weigh and record the amount of food put out each time.

Ideally, the food should be placed in identical containers (such as shallow margerine tubs or coffee jar lids) to prevent any influence on the birds' choice.

It would be best to put sufficient food out so that some is left for re-weighing at the end of the day. Some preliminary experiments might be needed to find out how much food is required for this.

Weigh and put out the food at the same time each morning and similarly bring it in for re-weighing at the same time each afternoon. (Be careful when weighing food left that it has not absorbed rain water during the day). Records probably need to be kept for at least a fortnight, but the longer the better. This is particularly so when changes in the weather are expected, and the birds' response (or even anticipation) can be measured.

These ideas are taken from 'Birds and Mathematics', a R.S.P.B. Project Guide.

Birds in mathematics 2

Upbourne Town Bird Survey

This example illustrates one approach to organising a bird survey with a class.

(A map of Upbourne is contained within this pack).

Numbers of birds counted one morning in May.

	Pigeons	Starlings	Sparrows	Gulls	Kestrels	Ducks	Pied Wagtails	Swifts	Blackbirds
Shops and Offices	10	14	22	0	2	0	1	4	0
Factory	7	8	10	5	0	0	0	0	0
House and Gardens	4	20	30	2	0	0	0	0	4
Railway	7	6	13	0	1	0	1	0	1
Canal	0	0	10	3	0	2	2	6	1
Park	15	8	19	4	1	6	1	5	2
Playing Fields	0	11	4	8	1	0	1	0	0
Churchyard	2	4	12	0	0	0	0	11	2
Allotments	5	6	8	0	0	0	1	0	1
Waste Ground	8	8	9	3	1	0	0	0	1

1. How Many Birds?

How many pigeons were seen altogether?

How many of each of the other birds were seen?

Which was the most common bird?

Which was the least common bird?

Where would you find most of the pigeons?

Where would you find most of the other birds?

Which place has the most kinds of birds?

Which place has the fewest kinds of birds?

Where would you be able to see the largest number of birds?

Where would you see the smallest number?

2 Birds In Flight

If some of the pigeons feed near the shops and offices, and roost on the church, in which direction do they fly to roost each evening?

In which direction do they fly back in the morning?

How far do they fly?

If starlings nesting in the factory get their food from the allotments, in which direction do they carry food to their nests?

What is the shortest distance they need to fly?

3 Bird Places

Which birds would be worse off if the allotments were developed into houses and gardens?

Which birds would be better off?

Would the number of different kinds of birds be changed?

If the factory was closed down, demolished and became waste ground, which birds would benefit?

Which birds would suffer?

4 Comparisons

The park has more birds than the houses and gardens, but is bigger.

How much bigger is it?

If they were the same size, which would have the largest number of birds?

5 Birds In Difficulties

Which kinds of birds would be most affected if oil got into the canal?

In a cold winter, half the birds would die, except for those finding food in gardens. Only a quarter of these would die.

Why do the garden birds survive better?

Which are the garden birds?

How many of each of them would be left after such a winter?

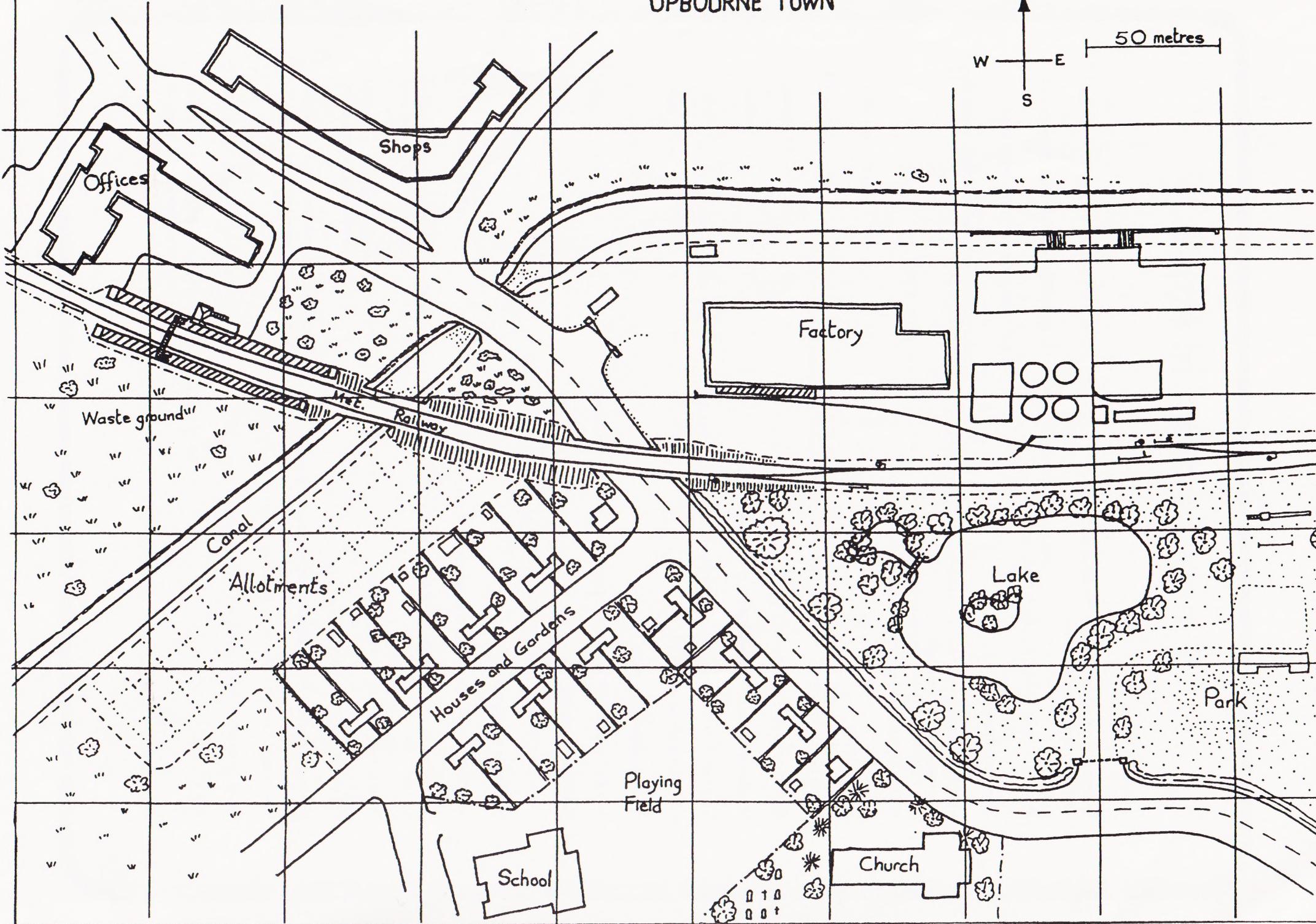
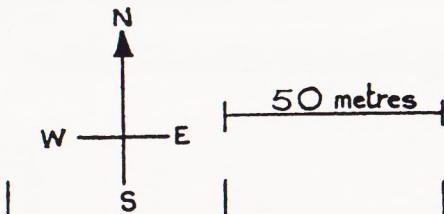
How many of each of the other kinds of bird would survive the winter?

Which birds would not be affected at all by the winter ?

Why?

These ideas are taken from 'Birds and Mathematics'. a R.S.P.B. Project Guide.

UPBOURNE TOWN



Drama - Mrs Owl

Three or four hundred years ago there was a little town in Germany where the people weren't as clever as people are nowadays, and something happened in that very town that filled the townsfolk with such terror that they talked of it for years afterwards. This was how it all began.

One night, not long before dawn, a large owl - one of the sort with two tufts of feathers that look rather like horns - happened to fly softly on her silent wings into a certain barn that belonged to one of the townspeople. Soon the owl, as she hunted about for mice, noticed that, outside, it was beginning to get quite light. She didn't like daylight so she thought she had better stay where she was in the nice dark barn and spend the day hiding. It wasn't so much the light that she minded but - as you know - when owls come out in daylight, sparrows and all the other little birds like to come out and mob them. They can't hurt them really but they fly round them chirruping and abusing them, till even a big owl feels quite flustered. So this owl, who was rather easily put out, decided to perch on a comfortable beam, and stay in the twilight barn, till - once again - it got nice and dark and safe for her outside.

Soon the sun rose and the townspeople began to wake up, and a manservant came whistling out to the barn to fetch some straw. What should he see when he opened the barn door, but Mrs Owl's two great gleaming eyes in the light that came through the open door. He was so terrified at the sight that he rushed out again in a fright, shutting the door behind him.

'Master, master!' cried he. 'There's a huge monster in the barn the like of which I never saw before! It stared at me with its great eyes! It must be huge for its eyes were right above my head!'

'Don't be such a coward,' said his master. 'I know you! You are hardly brave enough to chase a blackbird! You're the sort that has to get a stick before you go near a dead hen! I'm sure there can't be a monster in our barn.' So the master, angrily pushing the servant aside, went to his barn to see for himself. But no sooner had he opened the door than he saw Mrs Owl's eyes gleaming in the light. He was just as much frightened at the sight as his servant had been and, shutting the door behind him, he ran as fast as he could to fetch the neighbours.

'Help! Help! Come quickly, neighbours!' cried he, 'There's a terrible beast in my barn. I've shut it up, but the whole town would be in danger if it were to break loose! Come and help!'

So a whole crowd of his neighbours came, all armed with hay-forks, scythes and axes.

The mayor soon heard the commotion, and he told the town council that something terrible must be going on. So putting on their robes, he and the aldermen and councillors all joined in, and it wasn't long before the mayor had got all the townsfolk drawn up in the square just as if they had been a regular army. Then he gave his orders and marched them all down to the barn.

'Left, Right! Left, Right!' 'Right Turn! Left Turn! Halt!' And so, like that, they got the barn properly surrounded.

But now someone had to be found who would dare to open one of the big barn doors. At last the bravest of the aldermen, one who had got a real spear, opened the door and waving farewell to the rest of the town council he took a step inside the barn. But he rushed out again in a moment, pale as death, and so frightened that he could not utter a word to tell the others what he had seen. Two others tried it, but they fared no better. So a council of war of all the townsfolk was held. At last a big strong man spoke up. He had always told splendid tales of his warlike deeds, so, when he spoke, everyone in the crowd listened.

'The mayor and the councillors can't manage a job like this!' said he. 'They can't drive away the monster by just looking. I will see what I can do! Get me some armour, a spear and a sword!' At that the crowd began to cheer and everyone praised the strong man's courage. But the women said it was a shame that such a gallant fellow, a man in the prime of life too, should take such a terrible risk! At last, however the brave champion was dressed in armour from head to foot, and then not one, but both the great doors of the barn were flung open.

In the meantime Mrs. Owl, disturbed by so much coming and going, had perched herself on what she thought was a safer beam, so that now her big glowing eyes shone down from even higher. The champion could not reach her.

'Bring me a ladder!' cried he. 'For in the name of St. George who slew the dragon, I will surely rid the whole town of this terrible monster!'

Up the ladder he went clanking, and when she saw him coming closer, Mrs. Owl, worried by so much light and all the shouting - and now by all this clatter of armour - began to flap her wings and roll her eyes and even to snap at him with her beak.

'Strike home! Strike home!' cried the crowd.

'Tu whit tu whoo!' cried Mrs. Owl.

But, at that dreadful sound of 'Tu whit tu whoo', with a clang of armour, the valiant champion fell fainting off the ladder; it took four brave men to carry him out.

'Shut the doors! Shut the doors!' shouted the crowd when he was safe outside. Those who had been able to see, told terrible tales of what had happened. The monster was as big as a house! It had poisoned and mortally wounded the strongest and bravest man in the town!

'Just by snapping at him. Just by breathing on him!'

'Fancy that!'

'As tall as a church tower, they say the monster is!'

'With a loud and terrible voice! Like nothing you ever heard!'

'How shall we save the town?'

'Barn doors won't long keep in such a terrible creature!'

At last the mayor stood up on the steps of the fountain in the middle of the square.

'Listen, fellow citizens!' said he. 'There's only one thing to do! We must pay the owner the price of this barn and of the hay and straw in it - we must pay for them out of the town funds. Then we must burn down the barn and the terrible beast in it.'

And this is exactly what they did, except for one thing. Luckily for her, the noise and racket frightened Mrs. Owl so much that she bravely decided that she would face the sparrows and daylight and all, rather than stay in such a noisy place where an honest bird couldn't get a wink of sleep. So, while they were busy fetching torches to burn the barn, and without anybody seeing her, Mrs. Owl flew softly out of the window high up in the barn roof. Then on her silent wings she soon reached her own hollow tree again, without being noticed by a single sparrow, and at last settled herself down comfortably to sleep for the rest of the day.

Taken from Grimm's Fairy Tales, retold by Amabel Williams-Ellis, Piccolo, 1974.

Other ideas for drama:

'The Owl who was Afraid of the Dark' by Jill Tomlinson.

The Owl and The Pussy cat.

Winnie the Pooh.

Ceramic Owl

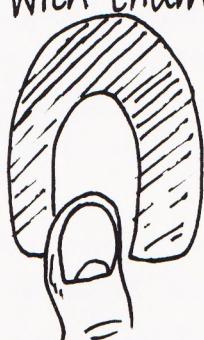
Suitable for children
7 years upwards.

Glaze or paint
with a single colour.

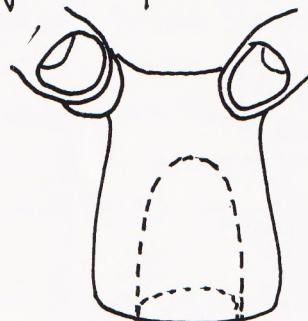
large egg-sized
ball of clay



slightly hollow
with thumb



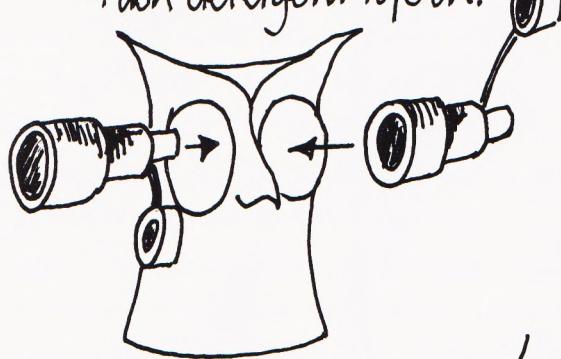
pinch ears and nose between
thumb & forefinger



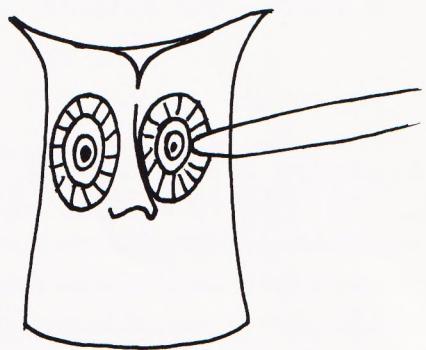
press eye holes
with thumb



Make eyes.
Push detergent tops in.

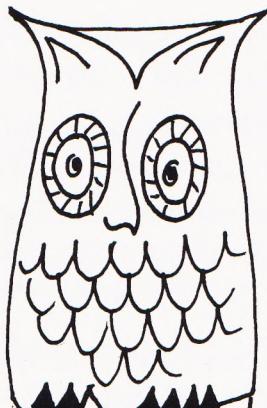
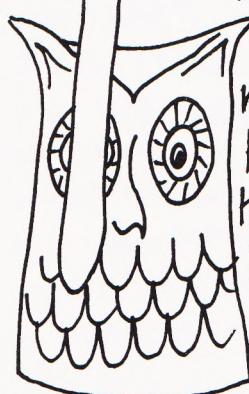


mark eye lines
with sharp stick.



Make feathers

with a
modelling
tool or
toothbrush
handle.



press feet with
sharp stick



Making and installing a Tawny Owl nest box.

Tawny Owls do not build a nest, but lay their eggs in a cavity in a tree, or sometimes an old nest such as a magpie's or squirrel's. The cavities usually chosen are fairly deep or dark, and sometimes surprisingly narrow. A frequent site is the hollow end of a broken branch, and it is this which is mimicked by the nest box design given here.

Tawny Owl boxes can have a high success rate — 50% or more in some areas — but care is needed in visiting them for two reasons. First, there is some danger of desertion if disturbed early in the breeding cycle. Secondly, a small proportion of Tawny Owls will attack intruders, and can inflict wounds with their talons. However, once the young are well feathered, they can often be seen perched on or near the box, without the need for a close approach. This stage is reached usually between early and mid May. Visits are best made towards evening.

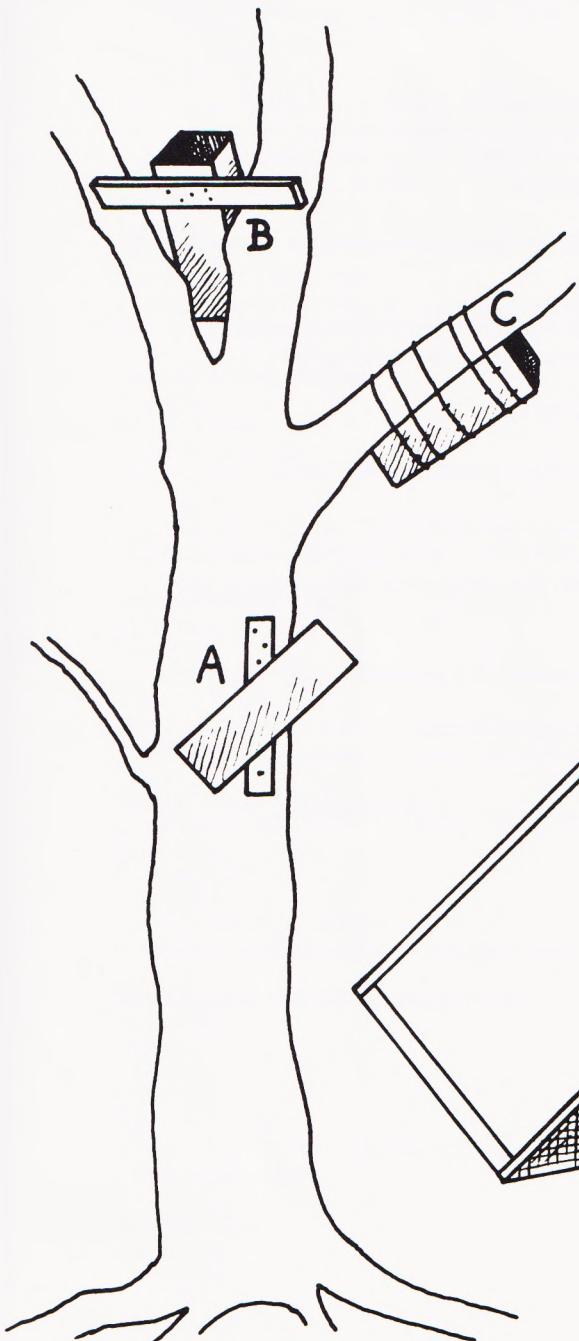
Siting and fixing. Although Tawny Owls are primarily woodland birds, they have adapted well to farmland where nest sites are available. If the land includes any spinneys or coverts, a box placed near the edge of one of these stands a very good chance of being used. Tawny Owls often roost in barns (causing confusion with Barn Owls!), and boxes placed near such roost places also have a good chance of success. Boxes can also be sited near known nest sites which are due for felling.

The box should be fixed to a tree trunk or main limb at an angle of about 45° to the horizontal. This can be done either by firmly screwing a batten onto the box at this angle and nailing this to the tree (see diagram), or by wiring it underneath a branch. Another way is to fix a long batten across the top end of the box and jam this in a fork, which may eliminate the need for nails. A height of ten feet is sufficient for the birds, but greater heights are recommended if there is any danger of vandalism or nest robbery. In exposed sites it is best to face the box entrance more or less easterly.

Installation of the box is best carried out by two people, using a rope for hauling. One person ascends the tree (preferably by ladder, as easily climbed trees are vulnerable to vandals) and passes the rope over a branch above the selected fixing place. One end is then tied round the junction of box and batten, taking care that no rope can get trapped between tree and batten. The climbers then reascends the tree, lifting the box by its rope while the ground man assists by hauling, until it has reached the desired final situation. If a horizontal cross batten is used, this must be steered through a fork so that the box hangs from it, jamming the batten by its own weight. If the batten tends to slide out of the fork, one or two nails may be needed, preferably at one end only in case the fork grows unequally. If wire is used, it should be stapled to the sides of the box.

DESIGN FOR TAWNY OWL BOX.

Dimensions may be varied according to wood available, but should not be much smaller than suggested sizes.



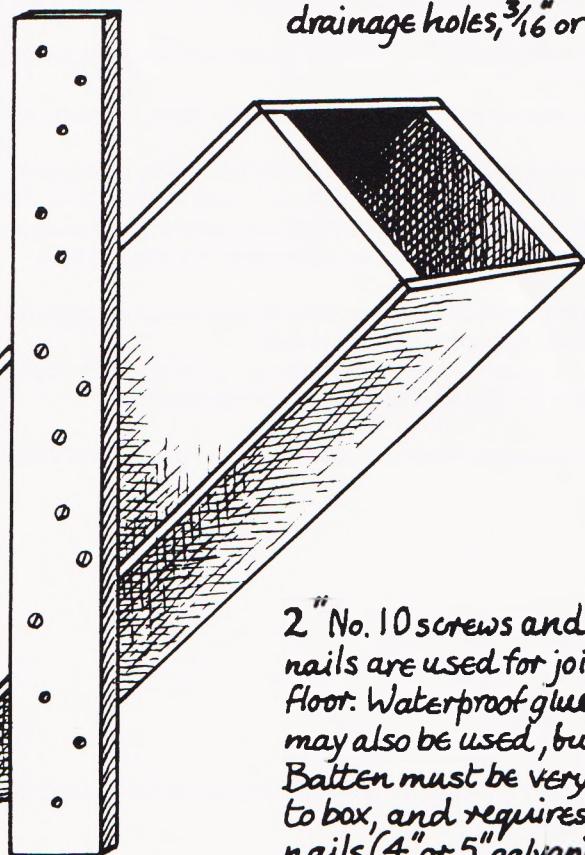
Alternative fixing methods:

- A: Vertical batten with box mounted at 45°
- B: Horizontal batten jammed in tree fork
- C: Box wired to underside of branch or limb.

Method A is generally simplest if nailing to the tree is acceptable. Method B sometimes needs no nails or wire at all; if nails are needed, they are best restricted to one end of the batten as unequal fork growth can cause problems.

Two sides 9" x 31 $\frac{1}{4}$ "
Two sides 10 $\frac{1}{2}$ " x 32"
Floor 9" x 10 $\frac{1}{2}$ "
Batten (fixing A) 28" x 4" approx.
Batten (fixing B) 36" x 4" approx.

The components are joined as illustrated, so that the internal dimensions are 9" x 9" x 31 $\frac{1}{4}$ ". This assumes $\frac{3}{4}$ " timber. If thicker is used, adjust to give same internal measurements. 9 mm. exterior ply (WBP) may be used for the larger sides. 1" timber is preferable for the batten. Floor must have 9-12 drainage holes, $\frac{3}{16}$ or $\frac{1}{4}$ ", evenly spaced.



2" No. 10 screws and 2" galvanised nails are used for joining sides and floor. Waterproof glue (e.g. Cascamite) may also be used, but not on its own. Batten must be very firmly attached to box, and requires pilot holes for nails (4" or 5" galvanised) used to fix it to the tree. Creasote or wood preservative is used to treat the exterior surfaces only. A layer of soft material (e.g. wood chips, straw, wood mould) is spread on the floor.

If wire is used, heavy gauge PVC covered garden wire is best. For added security, it should be stapled to the box.

How can I help owls?

DO let people know that you are interested in owls. They will often tell you about owls that they have heard or know about.

DO keep some sort of records of sightings or 'hearings', listing exact place and time.

DO make an owl nest box and put it up in a suitable place. (See the sheet on building a tawny owl nest box.) You will need to be very patient as the owls will not instantly flock in to take up residence.

DO think about the food that the owls will need in the area of your nest box. Longer grass encourages small mammals on which the owls can feed.

DO NOT use poisons to kill mice and other pests. Owls and other animals die from eating poisoned and dying mammals. (They may be pests to us, but they are food to many other members of the animal kingdom.)

DO please remember that all birds, their nest sites and eggs are protected by law.

Some owls, especially tawny owls, are liable to attack intruders, and can inflict wounds with their talons.

If you find an injured owl that has obviously been hit by a car, leave well alone and call the RSPCA.

BUT do not pick up an owl. Healthy owls have sharp beaks and claws. Sick owls are best left alone. Parents often leave baby owls in strange places, often for up to a day at a time.

If you want to go onto land to view owls, please seek permission from the owner. Any local person will tell you who owns the particular patch you want to visit.

Always follow the Country Code when out in the country.

MAPE acknowledges the help of 'Owl Prowl' and the 'London Wildlife Trust' in producing this fact sheet.

Useful Addresses

British Owl Breeding and Release Scheme

Muncaster Castle

Ravenglass

West Cumbria

Tel: 06577 614

(B.O.B.A.R.S. is an organisation formed to study owls with the object of helping wild populations to prosper. Has an aviary with a comprehensive collection of all British species and some from overseas.)

Guardians of the Countryside

121 Gloucester Place

London

W1H 3PJ

Tel:(Office) 01 935 8164

(An organisation sponsored by Heinz under the umbrella of The World Wildlife Fund producing posters and information packs.)

Heritage Wildlife Rescue

Fourways

11 Elm Drive

Middleton-on-Sea

West Sussex

PO22 6JD

Tel: 0243 696452

(Produce posters, badges, prints, soft toys, t-shirts etc. Magazine for senior members of the organisation.)

London Wildlife Trust

80 York Way

London

N1 9AG

Tel: 01 278 6612/13

(The London Wildlife Trust operates throughout the London area to protect and promote wildlife interests. They run The Owl Prowl, a survey of tawny owls in the London area. The Owl Service. Tel: 01 670 6080)

Nature Conservancy Council

Great Britain H.Q.

Northminster House

Peterborough

PE1 1UA

Tel: Peterborough 40345

(Produces newsletters and information sheets.)

Royal Society for the Protection of Birds

The Lodge

Sandy

Bedfordshire

SG19 2YA

Tel: 0767 80551

(Produce many project packs and leaflets - see the enclosed RSPB Project Guide price list. Run The Young Ornithologists Club.)

Wildfowl Trust

Slimbridge

Gloucester

GL2 7B7

Tel: 045 389 33

World Wildlife Fund

Panda House

11-13 Ockford Road

Godalming

Surrey

GU7 1QU

Tel: 048 68 20551

Young Ornithologist Club

(See R.S.P.B.)

Resources

Books about birds

- Ardley, N., Bird life, (The Question and Answer Encyclopedia Series), N.C.L.S. Ltd, 1978.
ISBN 0903322269
- Ardley, N., Birds, (Explorer Guides), Latimer House Ltd., 1979. ISBN 0906704014
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ISBN 0330240714

Weinstein, Krystyna, Owls, Owls - fantastical fowls, Schofield and Simms.

Computer programs and educational games

Please check prices before ordering. Not all prices include postage and packing .

Computer programs

Title: Animals in action datafile discs

Publisher: Education Dept., Anglia TV., Anglia House, Norwich NR1 3JG

Date: 1985

Price: £15.00 (£17.25 Nimbus)

Computer: BBC, RML 480Z, Nimbus

Description: A natural history database covering British birds, mammals, and sea fish linked to the Animals in Action television programmes. The datafiles all require the KEY data handling package

Title: Bird Search
Publisher: ADS Ltd., 138 Davies Rd., West Bridgford, Nottingham NG2 5HY
Price: Enquire for further details
Computer: BBC

Title: Birdgames
Author: RSPB
Publisher: Swift Computing, Ground Floor, West India House, Welsh Back, Bristol BS1 4SS
Date: 1984
Price: Cassette £14.95 + VAT, disc £16.95 + VAT
Computer: BBC
Description: Includes four bird identification programs: Birdquiz; Stoop; Bird Calls; Tell Me

Title: Birdwatch, Computer Club Series
Publisher: MacDonald Educational, 3rd Floor, Greater London House, Hampstead Rd., London NW1 7QX
Date: 1984
Price: £5.95
Computer: BBC, Spectrum, RM480Z
Description: An information book which provides the background to projects which can be carried out on the micro, plus listings of programs. An accompanying program is available.

Title: Farm Game
Publisher: Longman Micro Software, 62 Hallfield Rd., Layerthorpe, York YO3 7XQ
Price: £18.50 + VAT
Computer: RM380Z, 480Z, Apple, BBC
Description: A simple decision-making game for younger pupils who choose the crops to be planted on a farm.

Title: Garden birds; Country birds; Bird Quiz
Publisher: Natsoft, The Old Custom House, Banff AB4 1HW
Price: Enquire for details
Computer: BBC, Spectrum
Description: Three programs which assist in bird identification.

Title: Junior Ecosoft
Publisher: AUCBE, Endymion Rd., Hatfield, Herts AL10 8AV
Date: 1987
Price: £20
Computer: BBC
Description: This helps children investigate the natural world. It processes data on the environment, collected by children, and presents it in a variety of ways.

Title: Leaves; Pond animals
Publisher: Heinemann Software, The Argent Centre, 60 Frederick Street, Birmingham B1 3HS
Date: 1984
Price: £12.50 + VAT
Computer: BBC
Description: Two programs which assist children to identify specimens.

Title: Microbug
Publisher: Arnold Wheaton Software, E.J. Arnold & Son, Parkside Lane, Dewsbury Road, Leeds LS11 5TD
Date: 1984
Price: Cassette £6.95, disc £8.65
Computer: BBC
Description: An insect identification program which complements work done away from the micro.

Title: Migration
Author: RSPB
Publisher: Swift Computing, Ground Floor, West India House, Welsh Back, Bristol BS1 4SS
Date: 1984
Price: Cassette £9.95 + VAT, disc £11.95 + VAT
Computer: BBC
Description: A game for two teams competing to get their swallow from Scotland to Cape Town - presents the hazards of migration.

Title: Suburban Fox
Author: Dave Jackson
Publisher: Ginn & Co. Ltd., Prebendal House, Parson's Fee, Aylesbury, Bucks HP2 0 2QZ
Date: 1985
Computer: BBC, RM480Z
Description: A simulation which casts the user in the role of an urban fox. Suitable for groups of children.

Educational games

Title: The children's flower pack
Publisher: The Environment Centre, Drummond High School, Cochran Terrace, Edinburgh EH7 4QP
Price: £3.00 inc p&p
Description: An education pack which contains some flower card games.

Title: Ecoweb
Publisher: Philip Harris Biological Ltd., Oldmixon, Weston-Super-Mare, Avon BS2 4 9BJ
Price: £18.75 + VAT
Description: The easy way to learn about food chains, by taking the relationships which exist in a freshwater environment.

Title: Mini-beast mix'n match
Publisher: Urban Spaces Scheme, Dept. of Food and Biological Sciences, Holloway Road, London N7 8DB
Date: 1984
Price: £2.00 inc. p&p
Description: A pack of work sheets for constructing educational game cards based on insects and mini beasts.

Title: Tree games pack
Publisher: The Environmental Centre, Drummond High School, Cochran Terrace, Edinburgh EH7 4QP
Date: 1981
Price: £1.50 inc p&p
Description: A games pack designed to make learning about trees a fun activity as well as being educational and informative.

Title: Wildlife action book
Publisher: World Wildlife Fund, 11-13 Ockford Road, Godalming, Surrey GU7 1QU
Date: 1986
Price: £0.75 inc p&p
Description: A booklet containing games, mobiles, jigsaws, pictures to colour and a short story.

MAPE would like to thank the Nature Conservancy Council, Information and Library Services, Northminster House, Peterborough PE1 1UA for access to their information sheet (11) from which this list of programs and games was derived.

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If you would like to obtain an additional copy of this pack please write to Roger Keeling, Newman College, Bartley Green, Birmingham B32 3NT for details and price.

Note for 480Z Users

The software enclosed with this pack is for the BBC micro. Equivalent software does exist for the 480Z. If you would like the 480Z version of the software, please return the BBC disc to MAPE Information Officer, Newman College, Bartley Green, Birmingham B32 3NT, together with a stamped addressed adhesive label.

Although there is not a Nimbus version of the software, we hope that future software publications will also cater for this micro.