

Investigate Animal Defences

Investigate Animal defences series contains six children's books – *Animal defences*, *Octopus*, *Penguins*, *Elephants*, *Deer* and *Otters* – and an accompanying *Animal defences* CD-ROM.

Animal defences overview book

Animal Defences is an introductory book that lays the foundations for the detailed information contained in the books on specific animals: *Octopus*, *Penguins*, *Elephants*, *Deer* and *Otters*.

It can be used in group work and, in conjunction with the CD-ROM, in shared work to teach children key scientific concepts concerning the ways in which animals stay alive. You can also use it to teach the literacy skills necessary for reading, writing and talking about non-fiction.

Octopus, Penguins, Elephants, Deer and Otters

These books develop the concepts touched upon in the *Animal defences* overview book, and are ideal for group work in developing children's scientific knowledge and vocabulary while teaching them non-fiction literacy skills.

CD-ROM

The CD-ROM is extremely versatile and contains video clips, audio, in-depth information and games. It is ideal for teaching and modelling concepts, non-fiction features, grammar and vocabulary contained in the overview book. It can be used alone or alongside the overview book to develop children's enjoyment, knowledge and understanding of the defences that animals need for survival, while promoting non-fiction literacy skills.

Highly flexible, it is perfect as an extension of the overview book since it contains further information, activities and in-depth answers to questions. It also contains a source of activities for less-confident learners allowing them to access the text through the audio and other stimulus to generate interest while developing knowledge in the subject.

Teachers' notes

The following pages provide teachers' notes for leading guided reading sessions. They can be used in any order and cover work at word, sentence and text levels.

Investigate Animal defences teachers' notes

Key words

survive, climate, habitat, adapt, prey, predators, camouflage

Activities for guided reading

- Ask the children to examine the cover of *Animal defences*. Can the children name the animals featured? What do they know about these animals. List their suggestions on the board.
- Explain that this is a non-fiction book and gives information about these animals.
- Tell the children that a non-fiction text is more likely to be illustrated with photos than drawings. Can the children give reasons for this? (Photos are more exact, realistic and so on.)
- Read through the contents page and explain its purpose.
- Identify the glossary. Find a word in bold type and model looking it up in the glossary.
- Read the first sentence on page 4 and ask the children what they notice about the way it begins (capital letter) and ends (question mark). Ask the children to give suggestions as to why the text opens with a question. (To trigger the reader's interest, to prepare the reader to find the answers further in the text.)
- Look at the verb 'need' on page 4 and point out that the past tense of this verb is made by adding '-ed'. Investigate other words in the text that end in '-ed', for example 'hunt', 'help', 'blend' and 'warn'.
- Point to the word 'survive' on page 4 and ask the children why it is set in bold.
- Model reading page 6. If the reader wants to find out where else in the text the word 'habitats' is used, what should they do? (Turn to the index, which helps the reader to locate information.)
- Do the children know of any other animals apart from swallows that migrate? Do they know of any other animals, apart from hedgehogs, that hibernate?
- Look at pages 10–11 together and explain the purpose of labels.
- Explain that the comparison chart on page 11 allows the reader to access information at a glance.
- Clap the number of syllables in the following words: 'habitat', 'animal', 'climate', 'camouflage'.
- Investigate words that have the same sound but different spelling pattern by focusing on the word 'turtle'. Make a list of words with the same phoneme (for example, 'word', 'bird', 'her').
- Look at page 17 together, drawing the children's attention to the visual effect created by the word warning. Encourage them to think about the importance of fonts and colours in a layout and to use them in their own writing.
- Ask the children what they know about endangered animals. After reading the text on pages 22–23, ask the children which animals they regard as endangered. As a follow-up, encourage them to check information books and websites to find out more about the animals discussed here.

Speaking and listening opportunities

- Ask the children to talk about the animals depicted in the inset photos on page 6 and page 7. Then read the questions and ask the children to suggest answers.
- Ask the children to talk about what is happening in the pictures of the armadillo on page 19.
- Encourage the children to talk about the different ways in which animals stay alive and to provide examples of the animals concerned. As a follow-up, ask the children to discuss the animal they find has the most successful defence mechanism, giving reasons for their choice.
- Ask the children, in pairs, to choose one animal discussed in the book and to mimic the actions it uses to defend itself. Can the other children guess the animal? Ask them to make notes on each performance and to give feedback at the end of the session.

Follow-on writing opportunities

- Write onto cards the names of animals discussed in the text – ‘camel’, ‘penguin’, ‘octopus’, ‘mole’, ‘deer’, ‘armadillo’, ‘turtle’, ‘crocodile’ – and ask the children to sort and write them in alphabetical order. Ask them to use a new line for each animal listed.
- Ask the children to select an animal from those discussed in the text. Invite them to write the name of the animal, draw a picture of it and to write one key fact about it.

Support for less confident learners

- Select three cards providing animal names and ask the children to sort them alphabetically. Encourage them to talk about their reasoning as they go along.

Extension for more confident learners

- Using the list of animals organised alphabetically, ask the children to research a key fact about each animal.

Deer teachers' notes

Key words

prey, predator, antlers, herd, herbivore, male, female

Activities for guided reading

- Hide the title of the book and look at the cover image together. Ask the children, in pairs, to predict what the book is about and to write their suggestions down in the form of notes.
- Challenge the children to find the contents page, a chapter heading, the glossary and index. Can they find an example of a caption, label and diagram?
- Talk about the chart on page 7, explaining that it provides at-a-glance information and is written in incomplete sentences.
- Talk about the rhythm of words, and their ability to express meaning, by reading aloud the chapter title 'Bulls in battle' on page 8. (The 'b' and long vowel sounds suggest heavy motion, aggressiveness.)
- Make a list of words that rhyme with 'fight', for example 'bright', 'kite', 'right' and 'bite'. Together make a list of words that have the trigraph 'igh', for example 'sigh', 'light', 'lightning' and 'high'.
- Can the children find words that rhyme with 'roar'? (For example, 'four', 'store', 'more', 'claw'.)
- Check the children's comprehension by asking them why a fawn has a spotted coat.
- With the children, list the names given to the babies of other animals such as: dog, cat, elephant, penguin, bird, otter and bear.

Speaking and listening opportunities

- Ask the children to talk through the process of finding the chapter 'Bulls in battle'. Which part of the book should they be looking at to find this information?
- Turn to page 9 and ask them to evaluate the effectiveness of having the word roar in a different font and colour. What does that tell them about the way they should read the sentence aloud? What other presentational devices could they consider in their own writing? (Captions that follow the contours of a photo, fact boxes, sidebars, alliterative headings.)
- Check the children's comprehension by asking them to define a herbivore. Do they know of other herbivores? Do they know what a meat-eating animal is called (carnivore) and can they list any?
- Ask the children to swap, with their partner, the notes they made in guided reading about the book's possible contents and discuss how accurate their predictions were.

Follow-on writing opportunities

- Challenge the children to research and prepare a chart giving at-a-glance information on herbivores and carnivores. Information could include name of the animals, distinguishing characteristics that show the animal to be either herbivore or carnivore, for example, large, flat molars/sharp front teeth and the food that they eat.

- Remind them that information should be easily accessible and that the sentences do not have to be complete.

Support for less confident learners

- After explaining the words 'herbivores' and 'carnivores', ask the children to write the headings 'herbivore' and 'carnivore'. Then challenge them to refer to the book and find two examples of a herbivore and two examples of a carnivore.

Extension for more confident learners

Ask the children to plan a poster on deer. Which information should they include? How should they organise their material? Encourage them to talk about illustrations and captions, and to incorporate their chart on herbivores/carnivores into the layout.

Elephants teachers' notes

Key words

prey, predators, herd, adapt, calf, female, trunk, tusk, hunter

Activities for guided reading

- Hide the title of the book and look at the cover image together. Ask the children to predict what the book is about. Ask them whether they think this is a non-fiction or fiction book and to justify their answer.
- Challenge the children to find the contents page, a chapter heading, the glossary and index. Can they find an example of a caption and a label? How would they find out where in the text the word 'tusks' is used?
- After reading the text, ask the children what a baby elephant is called. Can they name another animal whose baby is known as a calf? Do they know the names for a baby dog, cat, lion, kangaroo and penguin?
- Ask the children to clap the number of syllables in the following words: 'elephant', 'female', 'Africa', 'together' and 'trumpet'.
- Check children's comprehension by asking them how an elephant's body is adapted to living in a hot climate.
- Draw the children's attention to the word 'catch' on page 18. Do the children know the past tense of this irregular verb? Do they know the past tense of the following verbs: 'keep', 'are', 'fly', 'lead' and 'swim'? How would they find out this information? (Look up the words in a dictionary.)
- Challenge the children to find antonyms for the following words: 'oldest', 'together', 'wide', 'safe', 'hot' and 'hungry'.

Speaking and listening opportunities

- Ask the children to describe in their own words what an elephant looks like.
- Encourage the children to develop their visual literacy by covering the text on pages 16–17 and asking them to talk about what's happening in the picture.
- Encourage the children to talk about layout by looking at page 17 together. What effect is created by having the word 'danger' in a different font and colour? Why, do they suppose, was the colour red chosen for the word 'danger'?
- Challenge the children to scan the text for verbs that describe the elephant's movements. Then invite one child to mimic the movements, using the verbs as prompts.

Follow-on writing opportunities

- Ask the children to make a list of verbs from the text that they could use in their own writing about elephants. For example, 'stomp', 'flap' and 'trumpet'. Explain that these verbs are onomatopoeic.

Support for less confident learners

- Cover page 20 with a blank sheet of paper and ask the children to talk about what is happening in the picture on page 21.

Extension for more confident learners

- Cover page 20 with a blank sheet of paper and ask the children to write about what is happening in the photo on page 21.

Octopus teachers' notes

Key words

prey, predators, habitat, camouflage, den, coral, limb, sucker, blend

Activities for guided reading

- Hide the title of the book and look at the cover image together. Ask the children to predict what the book is about.
- Challenge the children to find the contents page, a chapter heading, the glossary and index. Can they find an example of a caption and a label?
- Look at the first sentence on page 4 together and ask the children what they notice about the punctuation. (It begins with a full stop and ends with a question mark.) Get the children to read the sentence aloud with the correct intonation. How would they read aloud the chapter heading on page 8, which ends with an exclamation mark?
- Read the text box on page 11 and explain the use of commas to separate items in a list.
- 'Octopus' is a three-syllable word. Invite the children to think of other animal words that have three syllables.
- Can the children find examples of two-syllable words in the text?
- Ask the children to sort the compound word 'seahorse' into its component parts. Challenge the children to scan the text for compound words and to identify the component parts of each word. ('Seahorse', 'flytrap', 'seabird', 'butterfly', 'hummingbird' and 'stonefish'.)
- Investigate words that have the same sound but different spelling, for example 'eel' and 'seal'. Prepare lists of words, with the 'ee' grapheme and the 'ea' grapheme.
- On page 10, cover the verb in the sentence 'The octopus is hungry' and ask the children to fill it in. Now repeat the activity with the sentence on page 11, 'They are its prey'.

Speaking and listening opportunities

- To test comprehension, invite the children to explain in their own words what pages 16–17 are about.
- Ask the children to take turns in talking about their favourite picture in the book, giving reasons for their choice.
- Tell each group to prepare a presentation on camouflage. Encourage them to discuss the topic among themselves and to research and make notes. A member of each group in turn delivers the presentation while the other groups evaluate the presentation, taking notes to provide feedback.
- Ask the children to discuss the effect of the different fonts used in the chapter heading 'Now you see me, now you don't!' How would they read it aloud with expression? Do the fonts reflect meaning?

Follow-on writing opportunities

- Ask the children to plan a poster on camouflage. Remind them to think about the following: strong introductory sentence, headings, photos, captions and labels. Remind them to write in the present tense, and that there should be agreement between subject and verb (for example, they → are; it → is). Encourage them to think about different fonts and their function in a layout.

Support for less confident learners

- Encourage the children to list the animals that are camouflaged in the picture on page 24.

Extension for more confident learners

Ask the children to comment on each other's plans for a poster on camouflage.

Otters teachers' notes

Key words

predator, prey, territory, inhabit, carnivore, spraint, holt, male, female

Activities for guided reading

- Hide the title of the book and look at the cover image together. Ask the children, in pairs, to predict what the book is about and write their suggestions in the form of notes.
- Challenge the children to find the contents page, a chapter heading, the glossary and index. Can they find an example of a caption and a label?
- Can the children find the name for a baby otter? List the names given to the babies of the following animals: 'dog', 'cat', 'elephant', 'penguin', 'bird', 'deer' and 'bear'.
- Ask the children to clap the number of syllables in the following words: 'territory', 'special', 'usually', 'swimming' and 'establish'.
- Challenge the children to scan the text for compound words (for example, 'grasshopper', 'freshwater', 'saltwater', 'underwater' and 'stinkbug') and to split them into component parts.
- Turn to page 11 and ask the children why the words 'inhabit', 'freshwater' and 'saltwater' are in bold.
- Read the final sentence on page 13 and talk about the use of commas to separate items in a list.
- Ask the children to go on a word hunt for words that have the long vowel phoneme 'ee' (for example, 'need', 'stream', 'clean', 'seashore').
- Invite the children to scan the text for the following words: 'river', 'among', 'water', 'through', 'under', 'lots' and 'three'.
- Check the children's comprehension by asking them how an otter's body helps it to swim.

Speaking and listening opportunities

- Encourage the children to talk about the book and to discuss an 'otter fact' that they find interesting.
- Invite them to talk about the picture in the book that most engages them.
- Referring back to the list of suggestions, how accurate were their predictions about the contents of the book?
- Tell them to discuss and then make a checklist of what they still want to know about otters.
- After reading the book, check the children's comprehension by covering the text on page 13 and asking them what the inset pictures are about.

Follow-on writing opportunities

- Ask the children to write a caption for the photo on page 12.
- Using the checklist, ask the children to research facts they want to find out about otters. Encourage them to make notes and to incorporate these facts in a poster on otters.

- Encourage them to find out and make notes about 'Otters in Britain'.
- Tell the children that they are going to make a class book on otters. Each group is going to write a paragraph on one of the following topics: body features, food, baby otters, marking territory and threats to the otter's life. Encourage them to think about key words for their topic and a good opening sentence (which could be a question). Remind them to use capital letters at the beginning of sentences, commas, full stops, question and exclamation marks. They should also think about appropriate photos, charts, diagrams, labels, captions and the use of different fonts.

Support for less confident learners

- Ask the children to suggest a suitable caption for the picture on page 12 and where they think it should be positioned on the page.

Extension for more confident learners

- Invite the children to write a paragraph on the 'otter fact' that they find interesting.

Challenge the children to research the history of the otter in Britain during the last fifty years. They may like to find out about other animals that have been endangered and are now protected – and to use this information in a poster.

Penguins teachers' notes

Key words

habitats, male, female, rookery, adapt, blubber, warm-blooded

Activities for guided reading

- Hide the title of the book and look at the cover image together. Ask the children to predict what the book is about.
- Challenge the children to find the contents page, a chapter heading, the glossary and index. Can they find an example of a caption, a label and a diagram?
- Read page 6 together and look at the way the text is structured, beginning with a sentence that gives general information and then providing specific information. Can the children identify words that introduce specific information? ('Some', 'Others'.)
- Make a list of words that rhyme with 'heat'.
- Can the children find any words in the text with the grapheme 'sh'? ('Harsh', 'shade', 'shelter', 'shuffles'.)
- Draw the children's attention to the word 'caught' on page 20. Do the children know the present tense of this verb? Do the children know the past tense of the following irregular verbs: 'is', 'are', 'come', 'stand', 'keep' and 'go'?
- Ask the children to find antonyms for the following words: 'harsh', 'hot', 'wet', 'dark', 'deep' and 'tall'.
- Tell the children to scan the text for compound words and to break them into component parts. ('Jellyfish', 'waterproof', 'dewdrops', 'underground', 'iceberg'.)
- Invite the children to clap the number of syllables in the following words: 'penguin', 'living', 'hunt', 'jump', 'desert' and 'jellyfish'.
- Turn to pages 6–7 and challenge the children to name the different habitats represented by the images of the jellyfish, cactus, penguin, lizard and bat.
- Check the children's comprehension by asking them how the penguin's body is adapted for swimming.

Speaking and listening opportunities

- Encourage the children to think about different habitats by asking them whether they would prefer to be a camel in the desert or a penguin in the snow. Ask them to justify their choice, drawing on information they have learned from this book and other information sources.

Follow-on writing opportunities

- Ask the children to write a caption for the picture on page 9.
- Tell the children to plan a poster on penguins and to make notes. Remind them about the importance of layout and to think about the following: strong introductory sentence, headings, photos, captions, diagrams and labels.

Support for less confident learners

- Listen to children's suggestions for a caption to the picture on page 9 and model writing it, emphasising the importance of a capital letter at the beginning of the sentence and a full stop at the end.

Extension for more confident learners

Ask the children to produce a poster on penguins and to incorporate and develop their notes from the planning stage.