

# The Book of Brilliant BUGS

JESS FRENCH

## EXPLORER PACK

FOR AGES 7–9

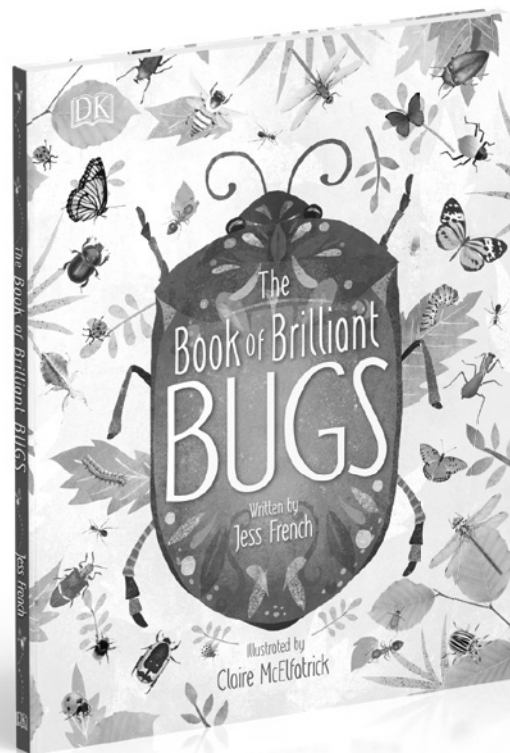
### THE AIM

**This Explorer Pack can be used with children either in the classroom, shared outdoor space, or at home.**

It includes a series of activities, all themed around *The Book of Brilliant Bugs*, the beautiful and colourful new book by children's TV presenter Dr. Jess French.

You can dip in and use as many of the activities as you like with children to help them think about the world around them in lots of interesting ways.

The overall objective is to give children the opportunity to explore the natural world, to engage with the endless wonder of the gardens on their doorsteps, and to develop empathy for the creatures that they find there.



**We'd love to hear** about how you're using these resources in your classrooms and libraries. Please share your photos and stories with us online!

Tag us **@dkbooks** and use the hashtag **#TheBookofBrilliantBugs**

# ABOUT THE BOOK

**Enter the kingdom of bugs and their close relatives for a magical journey through the forest floor, down into the deepest caves, and even across the open ocean.**



Insects, arachnids, worms, and molluscs are crawling across the pages of this colourful bug book, which combines gorgeous illustrations and photos to help young animal enthusiasts spot and learn all the main bug groups.

From dancing bees to cartwheeling spiders, from butterfly athletes to the beetles that eat poo, they'll learn all about the incredible secret world of creepy-crawlies. And they'll find out how bugs help to look after our planet too.

*The Book of Brilliant Bugs*, written by insect expert Jess French and illustrated by Claire McElfatrick, takes children on a fascinating journey of exploration, showing them just how amazing creepy-crawlies are, what they do for our planet, and how we can help them.

It includes bug relatives such as slimy slugs, web-spinning spiders and scuttling centipedes, plus amazing facts on how bugs pass on messages, compete for food, seek true love, and fill the air with buzzing wings.



# EXPLORER PACK

## ACTIVITIES INCLUDED

### ACTIVITY 1: BECOME A BRILLIANT BUG EXPLORER (PAGE 4)

**Objectives:**

- To develop an appreciation and excitement for the world around us
- To identify different members of the Invertebrate Family and their features

**Outcomes:**

An 'Explorer Fact-File' with cover sheet; a survey of a garden or local green space; a table of the different members of the Invertebrate Family and their features.

### ACTIVITY 2: CREATE A BRILLIANT BUG PHOTO ALBUM (PAGE 8)

**Objectives:**

- To understand that there is a variety of different insects and that they come in all shapes and sizes!
- To identify different insects in a green space by recording sightings

**Outcome:**

A completed 'Creepy Crawly Photo Album' recording the different colours, markings and sizes of wings and helping to identify different species.

### ACTIVITY 3: BUILD A BUG HOTEL (PAGE 11)

**Objectives:**

- To describe the natural habitat of an insect found in a green space
- To empathise with creatures and understand the need for animal welfare and protection

**Outcomes:**

A postcard describing the habitat of an insect of choice; a completed 'Bug Hotel' suitable for a variety of bugs to live in; a record of any bugs visiting their new habitat.

### ACTIVITY 4: MAKE A PLEDGE TO BRILLIANT BUGS (PAGE 14)

**Objectives:**

- To identify and understand why brilliant bugs are so important to the planet
- To create a list of actions for protecting brilliant bugs

**Outcome:**

A poem and illustration entitled, 'What Brilliant Bugs Mean to Me'; a list of actions for helping to protect the bugs; a Conservation Pledge.



## ACTIVITY ONE

# BECOME A BRILLIANT BUG EXPLORER

### Explorer Task 1: My Explorer Fact-File

First things first: before we can get started, you need to make sure that you've got a file or folder to keep all of the information that you will gather during the course of these activities.

Decorate the front of your Explorer Fact-File by completing the cover sheet template below. Once decorated, carefully cut it out and stick this to the front of your file or folder.

MY NAME IS

.....

I AM A  
BRILLIANT BUG  
EXPLORER



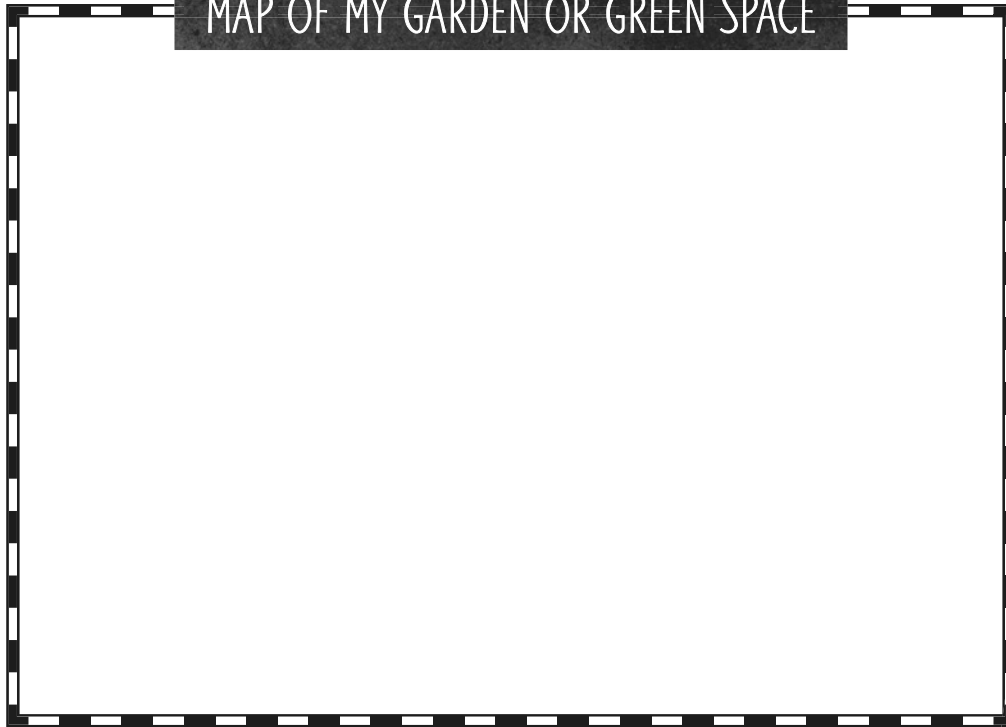
## ACTIVITY ONE

# BECOME A BRILLIANT BUG EXPLORER

### Explorer Task 2: Venturing Outside

It's time to go outside! Use the headers below to record what you find in your garden or local green space. Take photographs or make drawings of anything interesting and print them off so that you can keep them in your Explorer Fact-File.

### MAP OF MY GARDEN OR GREEN SPACE



Number of bugs spotted: \_\_\_\_\_

Area where most bugs were spotted: \_\_\_\_\_

Possible reasons for this: \_\_\_\_\_

\_\_\_\_\_

Other creatures spotted living in this area: \_\_\_\_\_

\_\_\_\_\_

My observations: \_\_\_\_\_

\_\_\_\_\_



# ACTIVITY ONE

## BECOME A BRILLIANT BUG EXPLORER

### Explorer Task 3: Meet the Family

Use pages 10–11 in *The Book of Brilliant Bugs* to help you distinguish between different types of INVERTEBRATES. What are their key differences?

**MEET THE FAMILY**

The invertebrate family is enormous! We split it into smaller families to help us understand it a little better. Some of the main groups of invertebrates are arthropods, worms, and molluscs, but sponges, corals, and starfishes are also invertebrates!

**Insects**  
Insects are by far the biggest group of arthropods. In fact, around 80 per cent of all animals on Earth are insects! Insects have six legs, three segmented body parts, compound eyes, and a pair of twitchy antennae.

**Arachnids**  
Arachnids have eight legs. Their bodies are made up of two parts and they don't have antennae or wings. They also have highly specialised mouthparts for grabbing prey and chopping up food.

**ARTHROPODS**  
The biggest group of invertebrates is the arthropods. It's gigantic! 85 per cent of all animal species alive on Earth today are arthropods. And most arthropods are known as "bugs". Every arthropod has a skeleton on the outside of its body, jointed legs, and a body that is split into segments (sections). Four of the main groups of arthropods are **insects**, **arachnids**, **myriapods**, and **crustaceans**.

**Myriapods**  
Like insects, myriapods have one pair of antennae, but instead of three body segments they can have more than 100! Millipedes and centipedes, the most common myriapods, can have more legs than any other creature on the planet.

**Crustaceans**  
Almost all crustaceans live in the water, and are well adapted to aquatic life. Most people don't consider crustaceans to be bugs, but there is one small exception: woodlice. They are the only crustaceans to spend their entire lives on land and can often be found in gardens and woodlands.

**WORMS**  
Worms have long, thin bodies and no legs. Segmented worms, like earthworms, have long muscular bodies split up into segments. They are very good at burrowing and swimming. Flatworms are very basic creatures, which usually live as parasites in the bodies of other animals.

**MOLLUSCS**  
Molluscs are soft-bodied invertebrates. Most of these bug relatives have hard protective shells, and some have ticky tentacles! Lots of them live in the ocean, but some live on land.

**Gastropods**  
The biggest group of molluscs is the gastropods. They have muscular bodies, hundreds of small teeth, and sensory tentacles for seeing and feeling. Most gastropods have shells, but some, like slugs, don't.

**Illustrations and Labels:**  
Bush-cricket, Atlas moth, Damselfly, Honey bee, Cardinal beetle, Leaf insect, Ant, Stick insect, Praying mantis, Golden orb weaver spider, Whip spider, Bark scorpion, Vinegaroon, Desert blonde tarantula, Tack, Mite, Dragon millipede, Pull millipede, Giant tiger centipede, Common centipede, American lobster, Dungeness crab, Mussel, Oyster, Octopus, Earthworm, Leech, Red mangrove flatworm, Nudibranch sea slug, Sea snail, Garden slug, Woodlouse.

(FULL SIZE, PRINTABLE SPREAD AVAILABLE ON PAGE 19)



## ACTIVITY ONE

# BECOME A BRILLIANT BUG EXPLORER

### Explorer Task 3: Meet the Family *(continued)*

Note down what you find out from the extract in the table below. Can you put any of the bugs that you found in Explorer Task 2 into the correct category?

| INVERTEBRATE FAMILY MEMBERS | WHAT I FOUND OUT FROM THE EXTRACT |
|-----------------------------|-----------------------------------|
| Anthropods                  |                                   |
| Insects                     |                                   |
| Arachnids                   |                                   |
| Myriapods                   |                                   |
| Crustaceans                 |                                   |
| Molluscs                    |                                   |
| Gastropods                  |                                   |
| Worms                       |                                   |

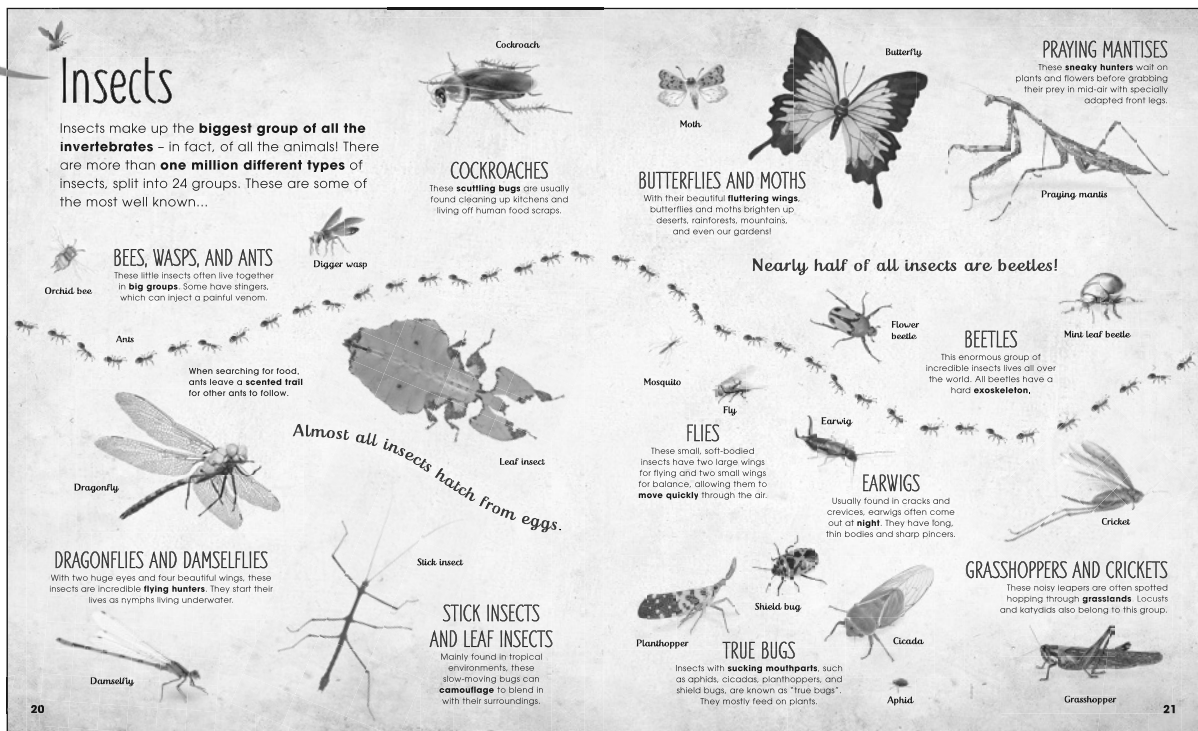


## ACTIVITY TWO

# CREATE A CREEPY CRAWLY PHOTO ALBUM

### Explorer Task 1: All Shapes, Sizes and Colours!

In *The Book of Brilliant Bugs*, Jess French showcases the incredible variety and beauty of creepy crawlies. Insects make up the biggest group of all the invertebrates – in fact, of all the animals! There are more than one million different types of insects, split into 24 groups.



(FULL SIZE, PRINTABLE SPREAD AVAILABLE ON PAGE 20)

Study the extract supplied and answer the questions with a partner:

**What type of insect has 'stingers' which can 'inject a painful venom'?**

\_\_\_\_\_

**Which two insects have 'beautiful fluttering wings'?**

\_\_\_\_\_

**What group makes up 'nearly half' of all insects?**

\_\_\_\_\_

**Which insects are mainly found in 'tropical environments'?**

\_\_\_\_\_



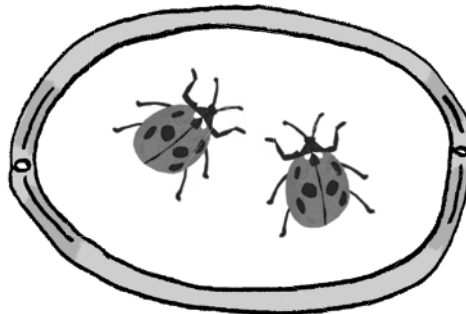
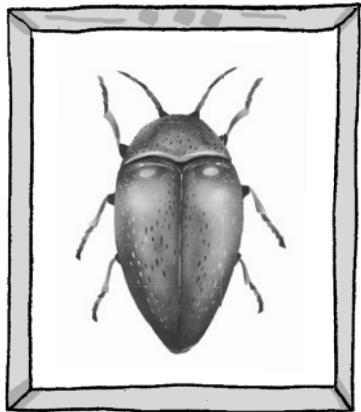
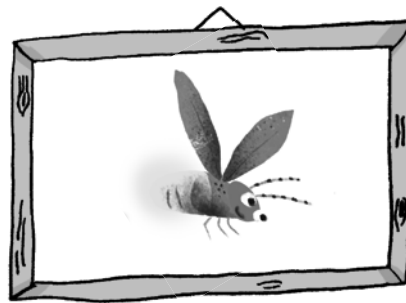
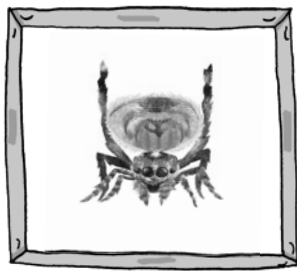


## ACTIVITY TWO

# CREATE A CREEPY CRAWLY PHOTO ALBUM

### Explorer Task 2: My Creepy Crawly Photo Album!

How many different insects listed in the extract on the previous page can you find in your garden or local green space? Use the supplied sheet (p.10) to create a photo album showcasing some of the different creatures you find. You can make sketches of what you see or take photographs - whatever you prefer!



**Consider:** which creepy crawlie do you like the most?  
Which are you most interested in? Why?

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# MY CREEPY CRAWLY PHOTO ALBUM

Date seen:

Features:

Colours and markings:

Size:

Date seen:

Features:

Colours and markings:

Size:

Date seen:

Features:

Colours and markings:

Size:



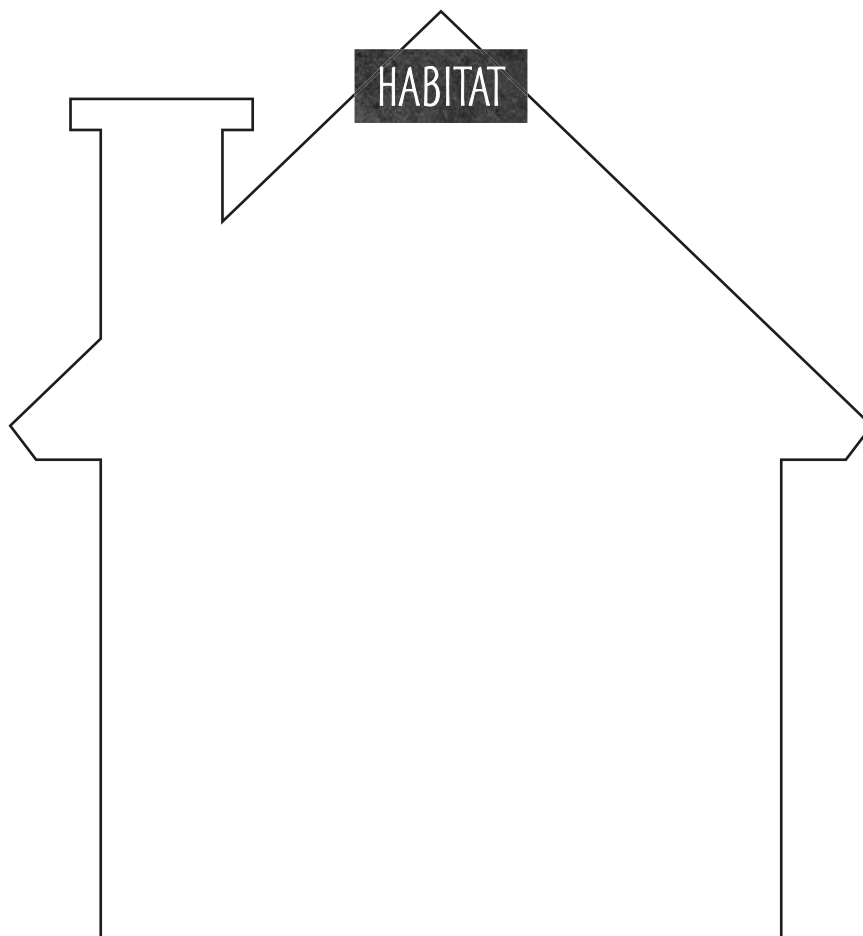
## ACTIVITY THREE

# BUILD A BUG HOTEL

### Explorer Task 1: Brilliant Bug Habitats

Just like you, creatures are at home in their natural habitats.

Look at the information that you have already gathered in your Explorer Fact-File. What sort of habitat do some of the bugs you've discovered live in? Choose one of the insects that you included in your Creepy Crawly Photo Album. Then, take another look outside and fill in the house template below. You can use the writing prompts to help you.



What does the habitat for your chosen bug LOOK like?  
Is there any shade or area for the bug to camouflage themselves?

What plants or soil can you see? (Take photographs)

How much space do the bugs have?

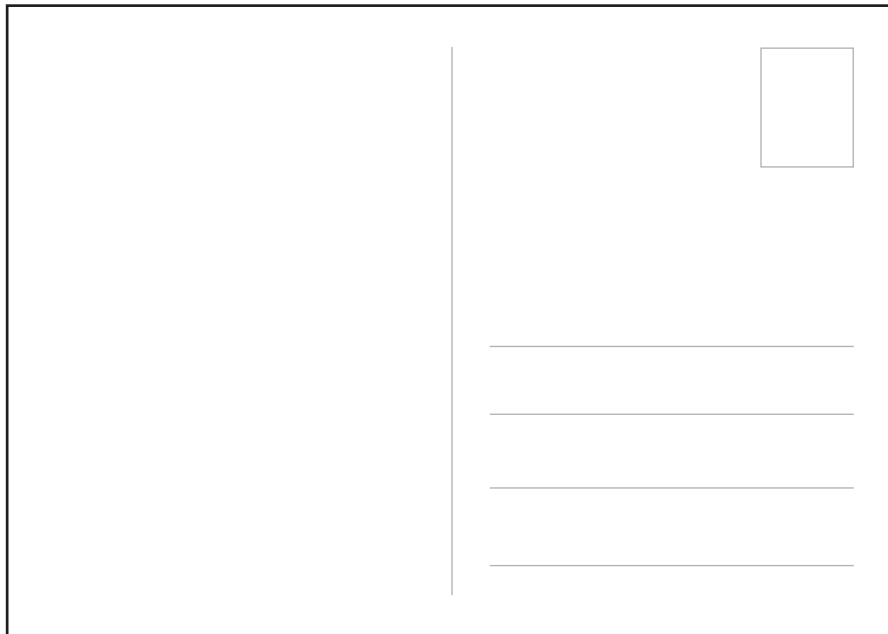
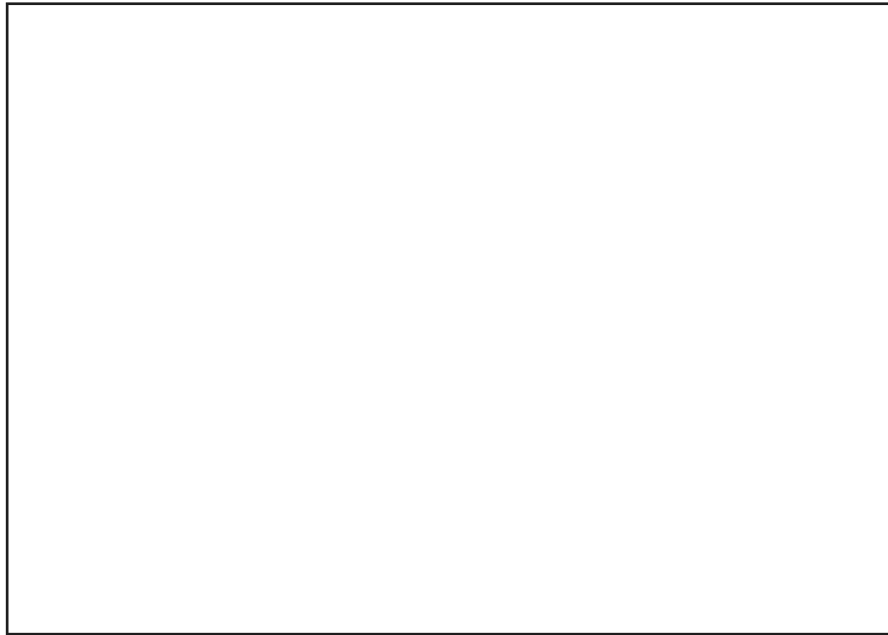


## ACTIVITY THREE

# BUILD A BUG HOTEL

### Explorer Task 2: Bug Postcard

Imagine that you are a bug living in your natural habitat. Write a postcard to describe what it's like in your habitat – and don't forget to include a drawing or a photograph of it on the front!



## ACTIVITY THREE

# BUILD A BUG HOTEL

### Explorer Task 3: Build a Bug Hotel

Use the directions on pages 76–77 of *The Book of Brilliant Bugs* to build your Bug Hotel! Remember, a well thought out Bug Hotel can attract many different types of bugs. If you manage your patch to create a breeding habitat, you may see even more!

**Helping bugs**  
**Bugs deserve our love and care.** After all, they work hard to keep our planet in tip top condition. Help them by building them a cosy new home.

**BUILD A BUG HOTEL**  
Make space outside for your very own bug hotel – it's a great way to help bugs and recycle garden waste. Whether it's big or small, bugs will welcome a safe place to stay.

**Fill a dish with pebbles and add water – your guests might like a drink!**

**Some bugs will pop into your hotel for a short visit, while others may choose to hibernate there during the cold winter months.**

**Collect**  
**Gather materials** for your bug hotel. Almost anything can serve as a home for bugs, but natural materials are best. Look for rotting branches, bark, twigs, pinecones, dry leaves, bamboo canes, logs, hay, and straw – the list of things you can use is endless!

**Build**  
**Look outside for the perfect place** to build your hotel on flat ground. Space bricks evenly on the ground. Then stack some old wooden pallets on top – build carefully, you don't want your hotel to fall over!

**Fill**  
**Get creative and fill the gaps** between your pallets. Start by adding larger materials like pots and branches. Then gradually fill smaller spaces with things like pinecones and hollow plant stems. You can use straw and cut grass to fill very tiny gaps.

**Decorate**  
**Add the finishing touches** to your hotel. Make a sign and plant nectar-rich flowers like daisies nearby – they're the perfect treat for bees and other pollinating guests. Then sit back and watch your tiny friends move in.

76

77

(FULL SIZE, PRINTABLE SPREAD AVAILABLE ON PAGE 21)

**Consider:** does your habitat provide all of the things that creatures need in their home? Take pictures of your new Bug Hotel as it develops. Record how many bugs you see!



ACTIVITY FOUR

# MAKE A PLEDGE TO THE BRILLIANT BUGS

## Explorer Task 1: What I Have Learned

Using the table below, make a note of some of the brilliant bugs that you have found out about using the book, *The Book of Brilliant Bugs*, and your Explorer Fact-File.

| WHICH BUGS DO I KNOW A LITTLE BIT ABOUT? | WHAT FACTS DO I KNOW ABOUT THEM? | WHAT QUESTIONS DO I STILL HAVE ABOUT THESE CREATURES? |
|--|----------------------------------|---|
|  |                                  |   |
|  |                                  |   |
|  |                                  |   |
|  |                                  |   |

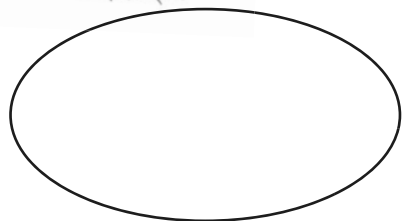
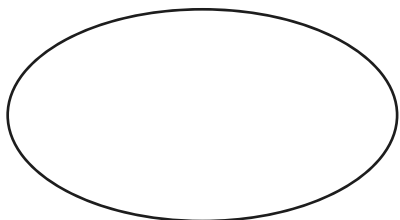
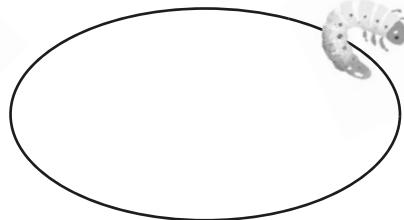
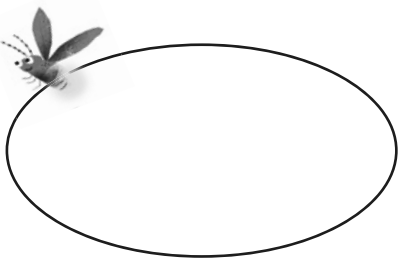
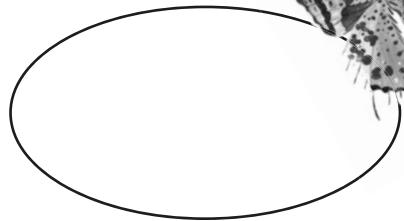


ACTIVITY FOUR

# MAKE A PLEDGE TO THE BRILLIANT BUGS

## Explorer Task 2: What Brilliant Bugs Mean to Me

**Consider the question:** what do these brilliant bugs mean to you? Create a list of words that come into your head when you think about these creatures. Use inspiration from your Explorer Fact-File!



## ACTIVITY FOUR

# MAKE A PLEDGE TO THE BRILLIANT BUGS

### Explorer Task 3: Brilliant Bug Poems

Use the template below to write a poem and a corresponding illustration to show what brilliant bugs mean to you. Consider how you can convey why these bugs should be protected.

### WHAT BRILLIANT BUGS MEAN TO ME

My poem:

My illustration:





## ACTIVITY FOUR

# MAKE A PLEDGE TO THE BRILLIANT BUGS

### Explorer Task 4: How Brilliant Bugs Help the Planet

On pages 72–73 of *The Book of Brilliant Bugs*, the author Jess French describes why bugs are so important to the planet. What are some of the reasons, according to the extract? List at least two.

**Helping the planet**  
Many people think of bugs as pests, but in reality most of them are very helpful. In fact, **without bugs and their relatives, life on Earth would be completely different.** They are vital for our survival, and the survival of the planet. Without these little heroes, the world as we know it would not exist.

**Important pollinators**  
Imagine if there were no bugs to pollinate fruit and vegetables. Without bugs, a third of our crop plants and countless wild plants would disappear.

**The food chain**  
They might be tiny, but bugs and their relatives have a hugely important role at the start of the food chain. They are food for countless amphibians, birds, mammals, and reptiles.

**In the delicate balance of nature, every creature plays its own important role.**

**Pest controllers**  
Predatory bugs keep many pest species under control by eating them, so that they don't destroy our crops.

**Recycling enthusiasts**  
Nature's clean-up crew takes waste materials and reuses them for food. Dead animals, plants, and poo would become a real problem without bugs and their relatives.

**Nature's gardeners**  
Below ground, bugs and their relatives prepare the perfect soil to help plants grow. Their poo acts as a fertiliser, and they make tunnels that allow water and air to reach growing plant roots.

**American robin eating an earthworm.**

**Ladybird eating an aphid.**

**Pill millipede feeding on rotting wood.**

72

73

(FULL SIZE, PRINTABLE SPREAD AVAILABLE ON PAGE 22)

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## ACTIVITY FOUR

# MAKE A PLEDGE TO THE BRILLIANT BUGS

### Explorer Task 5: Protecting Brilliant Bugs

Look at the six ways below that you can help to protect these creatures. For each thing listed, write down an action that you can achieve in your daily life:

#### 1. Get gardening! Monitor brilliant bugs in our gardens and green spaces

ACTION \_\_\_\_\_

#### 2. Campaign against human destruction of green spaces

ACTION \_\_\_\_\_

#### 3. Reduce your carbon footprint

ACTION \_\_\_\_\_

#### 4. Reduce, re-use and recycle!

ACTION \_\_\_\_\_

#### 5. Be respectful of all wildlife and habitats

ACTION \_\_\_\_\_

#### 6. Reduce artificial light sources

ACTION \_\_\_\_\_

### Explorer Task 6: My Pledge

Use your list of actions to write a Conservation Pledge to brilliant bugs!

## I PLEDGE TO PROTECT BRILLIANT BUGS

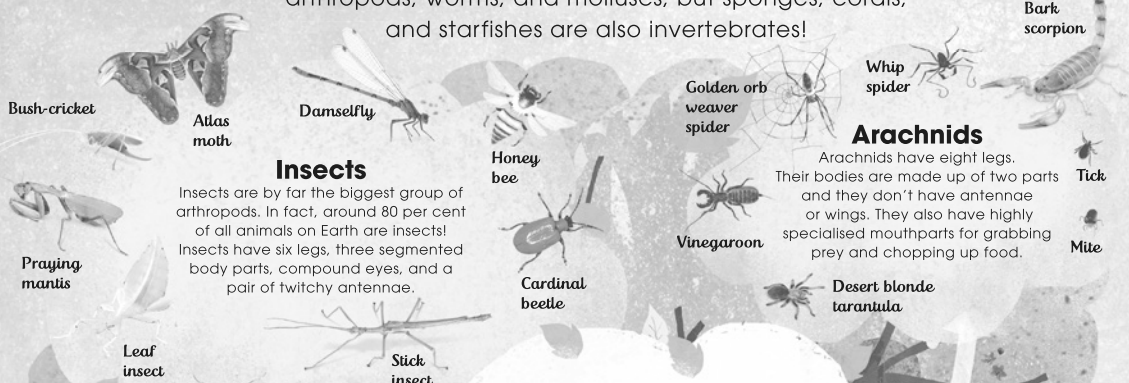
Here is my conservation pledge:



# MEET THE FAMILY

**The invertebrate family is enormous!**

We split it into smaller families to help us understand it a little better. Some of the main groups of invertebrates are arthropods, worms, and molluscs, but sponges, corals, and starfishes are also invertebrates!



## Insects

Insects are by far the biggest group of arthropods. In fact, around 80 per cent of all animals on Earth are insects! Insects have six legs, three segmented body parts, compound eyes, and a pair of twitchy antennae.

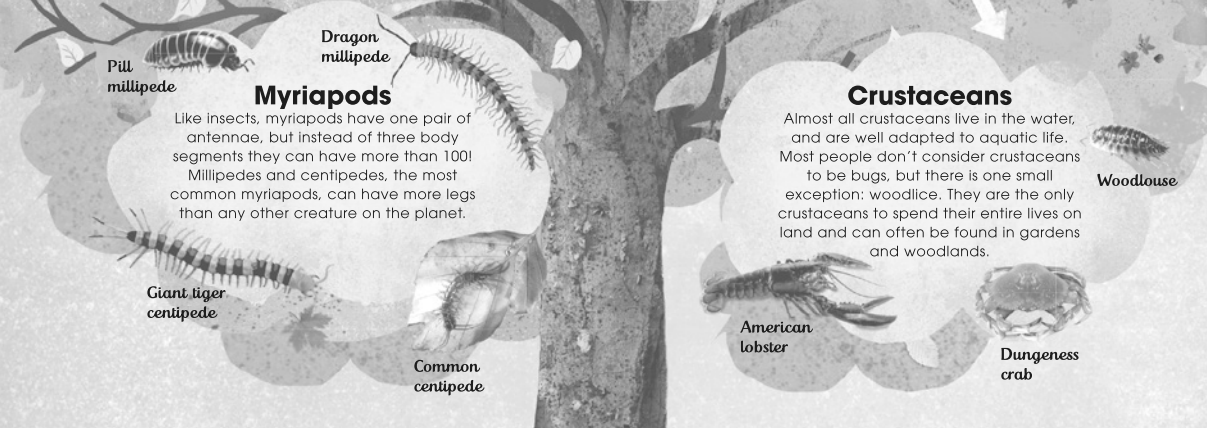
## Arachnids

Arachnids have eight legs. Their bodies are made up of two parts and they don't have antennae or wings. They also have highly specialised mouthparts for grabbing prey and chopping up food.

# ARTHROPODS

**The biggest group of invertebrates is the arthropods. It's gigantic!**

85 per cent of all animal species alive on Earth today are arthropods. And most arthropods are known as "bugs". Every arthropod has a skeleton on the outside of its body, jointed legs, and a body that is split into segments (sections). Four of the main groups of **arthropods** are **insects**, **arachnids**, **myriapods**, and **crustaceans**.

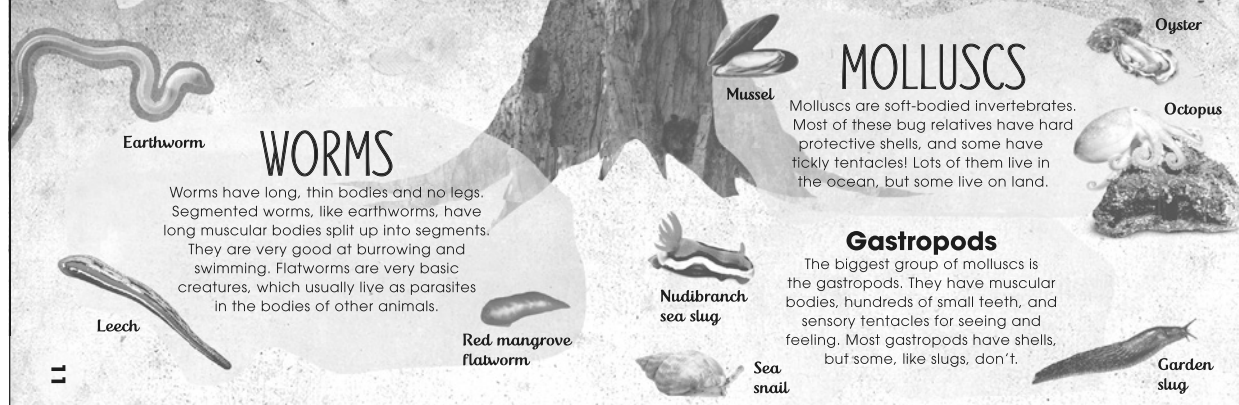


## Myriapods

Like insects, myriapods have one pair of antennae, but instead of three body segments they can have more than 100! Millipedes and centipedes, the most common myriapods, can have more legs than any other creature on the planet.

## Crustaceans

Almost all crustaceans live in the water, and are well adapted to aquatic life. Most people don't consider crustaceans to be bugs, but there is one small exception: woodlice. They are the only crustaceans to spend their entire lives on land and can often be found in gardens and woodlands.



# WORMS

Worms have long, thin bodies and no legs. Segmented worms, like earthworms, have long muscular bodies split up into segments. They are very good at burrowing and swimming. Flatworms are very basic creatures, which usually live as parasites in the bodies of other animals.

# MOLLUSCS

Molluscs are soft-bodied invertebrates. Most of these bug relatives have hard protective shells, and some have tickly tentacles! Lots of them live in the ocean, but some live on land.

## Gastropods

The biggest group of molluscs is the gastropods. They have muscular bodies, hundreds of small teeth, and sensory tentacles for seeing and feeling. Most gastropods have shells, but some, like slugs, don't.



# Insects

Insects make up the **biggest group of all the invertebrates** – in fact, of all the animals! There are more than **one million different types** of insects, split into 24 groups. These are some of the most well known...

**BEEES, WASPSS, AND ANTS**  
These little insects often live together in **big groups**. Some have stingers, which can inject a painful venom.

When searching for food, ants leave a **scented trail** for other ants to follow.

*Almost all insects hatch from eggs.*

Cockroach



## COCKROACHES

These **scuttling bugs** are usually found cleaning up kitchens and living off human food scraps.

Digger wasp



Orchid bee



Ants



Dragonfly

## DRAGONFLIES AND DAMSELFLIES

With two huge eyes and four beautiful wings, these insects are incredible **flying hunters**. They start their lives as nymphs living underwater.



Damselfly

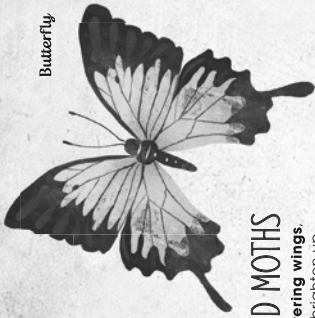
Stick insect



## STICK INSECTS AND LEAF INSECTS

Mainly found in tropical environments, these slow-moving bugs can **camouflage** to blend in with their surroundings.

Butterfly



## BUTTERFLIES AND MOTHS

With their beautiful **fluttering wings**, butterflies and moths brighten up deserts, rainforests, mountains, and even our gardens!

Moth



*Nearly half of all insects are beetles!*

## BEETLES

This enormous group of incredible insects lives all over the world. All beetles have a hard **exoskeleton**.

Mint leaf beetle



Flower beetle



Earwig



## EARWIGS

Usually found in cracks and crevices, earwigs often come out at **night**. They have long, thin bodies and sharp pincers.

## FLIES

These small, soft-bodied insects have two large wings for flying and two small wings for balance, allowing them to **move quickly** through the air.

Fly



Mosquito



Cricket



## GRASSHOPPERS AND CRICKETS

These noisy leapers are often spotted hopping through **grasslands**. Locusts and katydids also belong to this group.

Grasshopper



Cicada



Aphid



## TRUE BUGS

Insects with **sucking mouthparts**, such as aphids, cicadas, planthoppers, and shield bugs, are known as "true bugs". They mostly feed on plants.

Planthopper



Shield bug



# Helping bugs

**Bugs deserve our love and care.** After all, they work hard to keep our planet in tip top condition. Help them by building them a cosy new home.

## BUILD A BUG HOTEL

Make space outside for your very own bug hotel – it's a great way to help bugs and recycle garden waste. Whether it's big or small, bugs will welcome a safe place to stay.

Fill a dish with pebbles and add water – your guests might like a drink!

Ask an adult to help you lift heavy materials and build a stable hotel.



### Collect

**Gather materials** for your bug hotel. Almost anything can serve as a home for bugs, but natural materials are best. Look for rotting branches, bark, twigs, pinecones, dry leaves, bamboo canes, logs, hay, and straw – the list of things you can use is endless!

Some bugs will pop into your hotel for a short visit, while others may choose to hibernate there during the cold winter months.



## Bug Hotel



### Fill

**Get creative and fill the gaps** between your pallets. Start by adding larger materials like pots and branches, then gradually fill smaller spaces with things like pinecones and hollow plant stems. You can use straw and cut grass to fill very tiny gaps.

### Decorate

**Add the finishing touches** to your hotel. Make a sign and plant nectar-rich flowers like daisies nearby – they're the perfect treat for bees and other pollinating guests. Then sit back and watch your tiny friends move in.

# Helping the planet

Many people think of bugs as pests, but in reality most of them are very helpful. In fact, **without bugs and their relatives, life on Earth would be completely different.** They are vital for our survival, and the survival of the planet. Without these little heroes, the world as we know it would not exist.

## Important pollinators

Imagine if there were no bugs to pollinate fruit and vegetables. Without bugs, a third of our crop plants and countless wild plants would disappear.

American robin eating an earthworm.

## The food chain

They might be tiny, but bugs and their relatives have a hugely important role at the start of the food chain. They are food for countless amphibians, birds, mammals, and reptiles.

In the delicate balance of nature, every creature plays its own important role.

## Pest controllers

Predatory bugs keep many pest species under control by eating them, so that they don't destroy our crops.

## Recycling enthusiasts

Nature's clean-up crew takes waste materials and reuses them for food. Dead animals, plants, and poo would become a real problem without bugs and their relatives.

Pill millipede feeding on rotting wood.

## Nature's gardeners

Below ground, bugs and their relatives prepare the perfect soil to help plants grow. Their poo acts as a fertiliser, and they make tunnels that allow water and air to reach growing plant roots.

