



Step into the curious world of

# bugs

## ACTIVITY GUIDE

GRAND RAPIDS PUBLIC MUSEUM

*Be curious.*



This exhibition has been developed for the Museum of New Zealand Te Papa Tongarewa with Te Papa Workshop Limited

# LOOK INSIDE

Bugs has a secret trail and some challenges for you.

Can you complete them all?



## SECRET TRAIL

Bugs are fantastic at hiding in unexpected places. Look around the exhibition for:



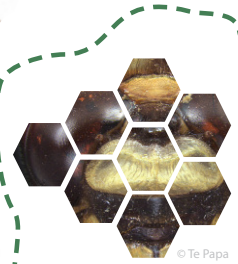
The bug that looks like this musical instrument

Pūtōrino (bugle flute), maker unknown. 1700–1850, New Zealand, Oldman Collection, gift of the New Zealand Government, 1992. Te Papa (01.001039)



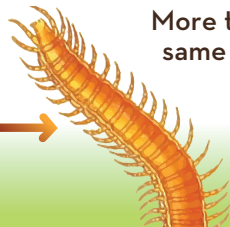
The bug with these spiky legs

Kate Whitley © Te Papa



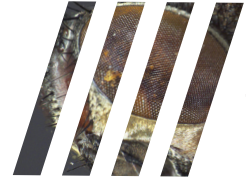
More than 10 of the same bug together

© Te Papa



A bug with more than 8 legs

The smallest bug in the exhibition



The biggest bug in the exhibition

## DISPLAY LAB NGÄ ÄHUA

Meet the orchid mantis, master of mimicry, and learn how bugs are not always what they appear to be ...

### CHALLENGE

Picture a bug that could blend into your school so well that no one would notice it. What does it look like?

### IMAGINE

Choose any bug on exhibit and look at the world through its eyes.

What colors and patterns do you see? What do you see better or worse than a human can?



## VENOM LAB PAITINI

Meet the jewel wasp - zombie maker, mind controller. She injects venom to make a nifty nest for her egg ... from a live cockroach! Find out how humans are using venom to help save lives.

### CHALLENGE

Visit the Venom lab and play 'Brain Surgery' to zombify a cockroach before it escapes!

### DISCUSS WITH A FRIEND

If you had venom, how would you use it to do good? What powers would it have? See the table in the Venom lab for ideas.





# FLIGHT LAB

KEI TE RANGI



Meet the dragonfly - a true flying ace! Explore how human flight technology is trying to match the dragonfly's amazing agility.

## CHALLENGE

Craft a paper bug and launch it in the wind tunnel to see if it can hover like a dragonfly.

## DRAW

Draw your paper bug design, including lots of details - like a scientist does.

# SWARMS LAB

NGÄ MANOMANO

Meet Japanese honeybees and be amazed at how teamwork helps them survive.



## CHALLENGE

Can you help save thousands of bees from a giant hornet? Play 'Rub the Pads' in the honeybees' chamber to find out!



## WRITE

Name three technologies inspired by swarming insects. (Clue: Read the digital labels in the Swarms lab.)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



# SILK LAB

HIRAKA

Meet the katipō spider and discover bugs' strongest building material. What do spiders and 3-D printers have in common?

## DRAW

If you could spin spider silk, what would you build with it? Sketch a picture of your creation.

# EXOSKELETON LAB

ANGAWAHO

Meet the bombardier beetle and marvel at how it makes a 'bomb' inside its body! Discover why wearing your skeleton on the outside can be a good idea...

## DISCUSS WITH A FRIEND

Beetles are influencing the design of new robots. If you were a robot maker, which bugs would inspire you?

What would you use your robot for? Would it fly, run, or jump? How would it help people?

