

Big Bang Science Workshops

For 5-12 year olds

BIG BANG SCIENCE WORKSHOPS

Children's Discovery offers a suite of *Big Bang Science* workshops to fit your needs. Whether it's a one-off event or a regular science club, these workshops are designed for children aged 5 to 8 and 9 to 12 years old, with accompanying adults always welcome.

All our activities have the aim of instilling confidence in asking and answering questions about the natural world, through genuine science-based investigations. For example, what kinds of explosive reactions await in your kitchen pantry, can balloons really demonstrate scientific principles and how can you balance objects in defiance of gravity?

Have a great idea for a workshop but not sure how to put it together? Get in touch with us. We have over 30 workshops to choose from and are continuously developing more.

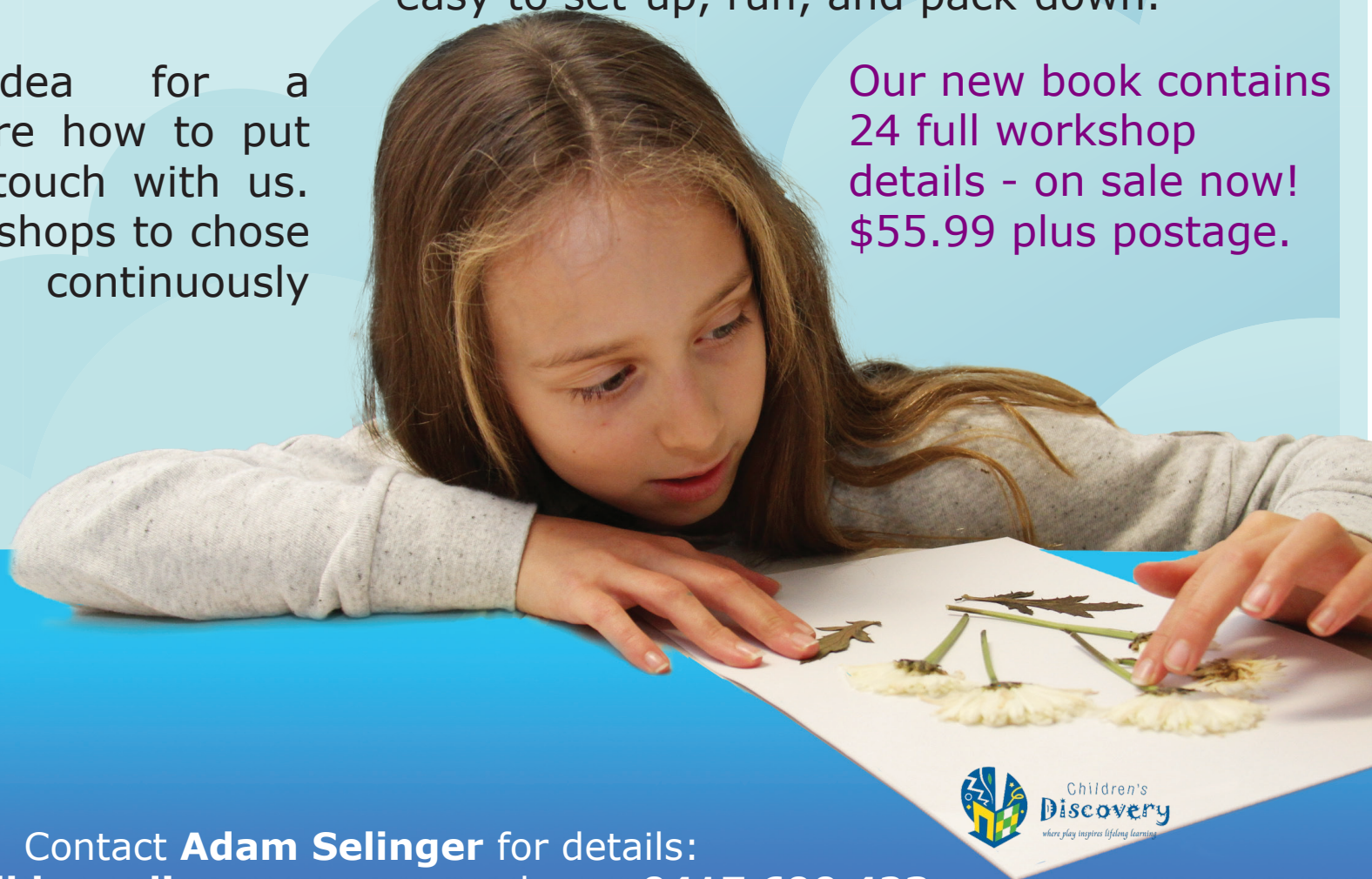
BIG BANG BOOK OF SCIENCE & WORKSHOP KITS

Looking to run your own science club? We can provide you with workshop kits for some of our most popular workshops. Each kit contains everything you need to get you started, including:

- Facilitator Notes & Lesson Plans
- Handouts and Recipes
- Discovery @ Home Challenges
- Risk Assessments
- Equipment Lists
- Reusable Equipment
- Easily Replaceable Consumables

All our workshops are designed to be easy to set-up, run, and pack-down.

Our new book contains
24 full workshop
details - on sale now!
\$55.99 plus postage.



Contact **Adam Selinger** for details:
adam@childrensdiscovery.org.au phone: **0417 690 423**

Air All Around Us

Get blown away in the investigation of the invisible as you discover everything about the air all around us, and make a tornado in a bottle to take home.

Is anything ever really empty? In this workshop we explore the air all around us: what it is made of, how it behaves and how it keeps us alive! Investigate air as a destructive force and make a tornado in a bottle to take home.

All About Plants

Explore the fascinating world of plants as you create a leaf rubbing, press flowers and leaves, and design a growth experiment to continue at home.

Do you have a green thumb? In this workshop we explore the fascinating world of plants. We examine the structure and function of leaves and flowers and make a pressing to preserve them. Design a growth experiment using potted seeds to continue at home.

Balancing the Improbable

Explore the science of balancing through a series of 'centre of mass' experiments, and make your own gravity-defying Wacky Wobbler to take home!

How good is your sense of balance? All solid objects have a point around which they are balanced. In this workshop we experiment with the balance point or centre of mass of various objects, even ourselves. We explore how we can modify our centre of gravity using counterbalance and make a gravity-defying Wacky Wobbler to take home.

Bottled Planet

Dive into the science of life cycles by creating your own bottled planet aquarium with living plants and animals (algae and brine shrimp) to take home.

It's the circle of life! In this workshop we explore the life cycles of plants and animals and discover how everything is interconnected in the bottled planet we call Earth. Make your very own bottled planet aquarium with brine shrimp and learn how to take care of them at home.

Changing States

Explore matter in all its physical states and apply these principles to transform milk into a tasty frozen treat for you to eat!

Solids, liquids and gases – they all matter! In this workshop we explore different types of physical changes and states of matter. See, smell and even taste the results as you transform milk into ice cream.

Dinosaur Doings

Join palaeontologists in exploring the prehistoric world of dinosaurs through fossils and make a fizzy dinosaur egg to take home!

Have a roar-some time exploring the prehistoric world of dinosaurs! In this workshop we explore the science of fossils, making a dinosaur impression fossil and learning how we know so much about creatures that went extinct 65 million years ago. Create a fizzy dinosaur egg to take home to hatch.

Eggsperiments

Eggsperiment with major ideas in physics, chemistry and biology and explain everyday phenomena using the humble egg!

Which came first – the chicken or the egg? In this workshop we use the humble egg to eggsperiment with major ideas in physics, chemistry and biology! You'll never look at a chicken the same way again!

Exercise and Your Body

Take a tour inside your body to discover how your heart and lungs work to keep you alive and what happens to your body when you exercise.

Have a heart to heart with yourself as we explore inside the human body, how it functions and what changes in response to exercise. In this workshop we measure our resting heart rate and discover what happens to it when we exercise. Find out how your heart rate compares to a hummingbird or even a blue whale.

I Like to Move It, Move It (Linked to Early Stage 1 Science and Technology Curriculum)

Discover what it really takes to 'move it' like the cast of Madagascar and use this to impress your family and friends with a clever physics trick.

The *Madagascar* cast 'like to move it', but what does it really take to move objects? In this workshop we experiment why and how objects move and what makes them stop. Explore the laws of motion in a fun and interactive way and maybe learn a trick to impress your friends and family.

Magic Magnets

Discover which materials cannot escape a magnet's powers of attraction, and make a magnetic fishing game to take home.

It's a sticky game we play! In this workshop we learn all about magnets and their mysterious 'invisible' forces of attraction. We discover what things are magnetic and how two magnets interact with each other. Create a temporary magnet and build your own magnetic fishing game to take home.

Marble Run

Challenge yourself in our marble-ous marble run, using household items and recycled materials to race your marble against the clock.

Gravity is a force that pulls all objects to the ground, but there's no rule that it has to be a straight road! In this workshop we create an elaborate and convoluted track for your marble to navigate and challenge you to compete in our *marble-ous* time trial. Use household items and recycled materials to guide your marble safely home.

Moon Adventures

Explore the forces we live with here on Earth and put your critical thinking skills to the test to predict if they would act in the same way or even exist on the moon.

Forces are acting on us all the time here on Earth. How would these change if we visited the moon? Test the forces on Earth with interactive activities and then consider if they would act the same way on the moon. Does the moon look the same in different places on Earth and why do we only see one side?

Quake 'n' Shake

Experience mother nature at its best... and worst by constructing your own working model volcano and testing structures on our earthquake platform.

Experience the destruction of one of nature's most ferocious forces first hand in this explosive workshop. Explore how and why volcanoes erupt, and make a working model volcano with a bicarb soda and vinegar eruption! Construct an earthquake proof structure to test out on our earthquake platform in an arms race between mother nature and humanity.

Six Bricks

Sample some of the 250+ short fun activities made possible with only six LEGO® DUPLO® bricks.

It's the simple things in life. In this workshop we test your memory, dexterity, creativity, problem solving and communication skills using only six LEGO® DUPLO® bricks. How do you stack up?

Sounds of Silence (Linked to Stage 1 Science and Technology Curriculum)

Big Bang Science Workshops

Lend your ears to the exploration of sound through a series of hands (and ears) on sound experiments and make your own sound maker (kazoo) to take home.

Is silence a sound? In this workshop we explore how sound is created, how it travels and how we hear it in a series of hands (and ears) on sound experiments. Feel and even see sound (well vibrations anyway) and make your own kazoo to take home.

For 9-12 year olds*

Air Ball Basketball

Sport meets science in this creative construction workshop as you explore the nature of air and how it behaves, and construct an Air Ball Basketball device to take home.

How many baskets can you score? In this workshop we explore the nature of air and how it behaves. Discover how air moves around round surfaces and construct a *remarka-ball* Air Ball Basketball device to master at home!

All Wired Up

Get all wired up with real-world circuitry using LEDs, switches, motors and buzzers, and discover the role and function of these common electronic components.

Don't get your wires crossed as we get all wired up! In this workshop we explore the fundamentals of electricity, creating simple circuits using Snap-on™ electronics kits. Experiment with electronic circuits using wires, LEDs, switches, motors, buzzers and batteries, and quickly discover how complicated they can get!

Awesome Astronomy

Explore all things lunar as you make your own phases of the moon model to take home and test your critical thinking skills in a moon survival challenge!

Say hello to the man in the moon as we explore our closest neighbour! In this workshop we investigate how and why the moon appears in the night sky. Test your critical thinking in a moon survival challenge and make your own phases of the moon model to take home.

Chemistry Lab

Investigate liquids that mix, those that are not so friendly and those that break up the party with simple experiments you can repeat at home.

Pour your heart and soul into this workshop about all things liquid. In this workshop we investigate the unique properties of liquids and the things they can hide. Use your newfound knowledge to manipulate their properties with some astounding effects.

DNA Extraction

Crack the genetic code as you extract DNA from the cells of various fruits and investigate how genetic traits are inherited.

Why do you look and behave the way you do? All living organisms contain a molecular code within their cells with codes for everything needed for life and reproduction. In this workshop we extract and physically see the DNA of various fruits and explore how genetic traits are inherited.

Big Bang Science Workshops

Escape Room

Race against the clock to solve the mystery of the Zombie Outbreak, Librarian Crime Ring, Alien Investigation, Pirate's Treasure or Scientific Discovery, and open the chest which holds the key to your escape!

Do you have what it takes to escape! In this workshop teamwork is the key to solving the mystery of the Zombie Outbreak, Librarian Crime Ring, Alien Investigation, Pirate's Treasure and Scientific Discovery! Follow the clues to open the chest which holds the key to your escape, but hurry, the clock is ticking!

Feel the Pressure!

Investigate the invisible as we explore the incredible effects of air pressure, and make a Cartesian Diver to take home.

Ever feel like you're under pressure? Well in fact we all are! In this workshop we investigate the invisible force of air pressure. Explore the amazing behaviour of the air all around us and make a Cartesian Diver to take home.

Illuminated Geometry

Be there or be square as we explore geometry in nature, and create illuminated geometric lanterns to take home.

It's maths, but with a twist! In this workshop we use the principles of geometry to construct illuminated lanterns using paper circles and LEDs. Explore the structure of cubes and tetrahedrons and discover naturally occurring geometry.

Inside Out

Uncover the ins and outs of a living organism, using dissection techniques to expose its anatomical structure and function.

Experience life from the inside out! In this workshop we use dissection techniques to explore the structure and function of external and internal anatomy. Apply your observation skills and critical thinking to explain how these features keep an organism alive.

Kitchen Chemistry

Combine your inner chemist and chef as we explore clever chemistry experiments you can do at home, using common kitchen cooking ingredients and household items.

The kitchen isn't only for cooking! In this workshop we explore clever chemistry experiments you can do at home, using common kitchen cooking ingredients and household items. Explore how we can use chemical indicators to help identify acids, bases and neutral chemicals, and use it to create secret messages or artwork to take home.

MadLab®

Learn the safe use of a soldering iron while constructing your own electronic gadget.

Experience electronics at its most fundamental! In this workshop we master the skill of soldering and use it to construct an electronic gadget. Some options might be to create a face with flashing lights for eyes, catch your friends out with a lie detector or even design a device to make all your decisions for you (age 8 +, 90 mins) www.madlab.org

May the Force Be With You (Linked to Stage 2 Science and Technology Curriculum)

Find 'the force' in your everyday life and use it to impress your family and friends with some clever tricks.

The *Jedi* aren't the only ones who use the force! In this workshop we explore the forces we experience every day – some that help us, some that hinder us and some we don't even see coming! Explore the laws of motion in a fun and interactive way and maybe learn a trick or two to impress your friends and family.

Big Bang Science Workshops

Meet Edison

Keep up to speed with the rapidly advancing world of robotics and programming with Edison the robot in this fun and interactive workshop.

Edison programmable robots are an Australian innovation. In this workshop, we activate Edison's capabilities using a pre-programmed barcode system, with functionalities such as line tracking and remote control driving, and modify Edison using Lego to compete in the Sumo Arena. For advanced users, we learn more about programming Edison using a drag and drop graphical programming software called EdBlocks.

Microscopic and Marvellous

Investigate the science of microscopy, viewing a variety of samples using dissection and light microscopes to discover that there is often more than meets the eye.

Take a closer look at all things microscopic and marvellous! In this workshop we explore the science of magnification and discover how and when to use dissection and light microscopes. Look closely at a variety of microscopic samples to discover that there is often more than meets the eye.

Potato Clock

Discover how electric circuits and batteries work by experimenting with electrical conductors and power a digital clock with a potato!

Can you power your entire house using potatoes? In this workshop we create a battery that powers a digital clock, simply using zinc and copper electrodes and a potato. We experiment with the conductivity of different materials using an energy stick and discover what we can use to complete electrical circuits.

Rat Trap Racers and Hovercraft

Discover the fundamentals of vehicular movement using rat trap racers and compare this to a model hovercraft you take home!

Ready, set, go! In this workshop we explore how motor vehicles work and apply the same principles to create 'vehicles' of our own. Use a rat trap as an engine in a race against your mates and make a model hovercraft to take home.

See Light in a New Light (Linked to Stage 3 Science and Technology Curriculum)

Experience light like never before as you experiment with light and how it behaves, and make a shadow puppet to take home.

It reflects, refracts and travels at 300 thousand kilometres per second, but what really is light? In this workshop we use hands-on activities to learn about light and how it behaves. Explore the science of shadow puppets and make one to take home.

Stop-Motion Animation

Tell your story in stop-motion using a simple yet sophisticated animation program and discover how animated movies are made.

Lights, camera, action! In this workshop we reveal the secrets of stop-motion animation as you direct your own movie. Share your creation with your family and friends with a premiere film screening. The only limit is your imagination!

Treasures of the Earth

Identify rocks and minerals as you assemble your own rock collection, and create a crayon metamorphic rock model to take home.

Stuck between a rock and a hard place? In this workshop we explore the secret life of rocks through a series of interactive activities. Learn how to identify different rocks and minerals as you assemble your own rock collection, and create a crayon metamorphic rock model to take home.

Tricks of the Eye

Blink and you'll miss this intriguing workshop exploring visual illusions and how we view the

Big Bang Science Workshops

world, and make a thaumatrope to take home.

Are your eyes playing tricks on you? In this workshop we explore the structure and function of the eye and how it influences how we perceive the world around us. We investigate how our eyes and brain sometimes trick us through a variety of visual illusions, and make a thaumatrope to take home.

For 5-12 year olds*

Animal Superheroes

Smell like an elephant, see like an eagle and jump like a flea in this 'super' workshop, investigating the superheroes of the animal kingdom and their adaptations (superpowers)!

Is it a bird? Is it a plane? It's not Superman! In this workshop we investigate the adaptations (superpowers) of some animal superheroes. Compare your abilities with animal superpowers through a series of interactive activities and discover which secret animal superpower you possess.

Energy in Our Bodies

Explore what is our body's 'power source' and what is the best fuel we can use? How can you balance energy intake and expenditure?

How do we "recharge our batteries"? Discover the energy and nutrients in food, learn how this is transported to all the cells in our body and analyse your energy intake and expenditure. What are Discretionary Foods and do we really need them?

Fossils Rock

Be transported into the past in this hands-on fossil workshop, including exploring real fossils, reconstructing a dinosaur from fossil evidence and making casts from genuine fossil moulds to take home.

Who says old has to be boring?! In this workshop we delve into the world of palaeontology, exploring life that existed over 10,000 years ago. Investigate real fossils, make a fossil cast from genuine fossil moulds, and reconstruct a dinosaur from fossil evidence, just like a palaeontologist.

Our Amazing Bodies

Put your body to the test through a series of fun, but challenging activities that explore the seven senses and use your melon to examine the efficacy of helmets.

The human body is the world's greatest machine! In this workshop we discover the inputs to our bodies through a series of fun, but challenging activities that explore seven senses. Examine how the brain is essential to processing all these inputs and model how helmets can protect our brains using a melon!

Science of Sherbet

Explore the sometimes explosive effects of acid-base reactions to discover how sherbet tingles your tongue, and make your own to take home.

Taste the science of sherbet. In this workshop we explore the somewhat explosive effects of acid-base reactions through carbon dioxide balloons and film canister or yoghurt tub rockets. Try a safe and delicious acid-base reaction in your mouth by making some sherbet to take home.

Big Bang Science Workshops

Slime

Don't get squeamish as you use your hands to explore all things slimy, including creating an awesome guar gum slime to take home.

The name says it all! The science of all things that ooze, squish and generally flow in unusual ways. In this workshop we investigate all things slimy, including those you use in everyday life, but never knew! Explore the behaviour and properties of different slimes and make your own guar gum slime to investigate back at home.

Unbelievabubbles

Mix like a chemist as you make your own bubble mixture and use your scientific investigation skills to help you master the art of Bubbleology.

Don't burst your bubble! In this workshop we make some unbelieva-bubbles with our secret bubble mixture recipe and craft some bubble blowing devices. Use your scientific investigation skills to explain how bubbles work, while also learning to master the art of Bubbleology!

Water Works

Try to stay dry as you discover how the wonderful water molecule works and all the tricks it performs in this challenge-based workshop.

Water may be essential to life on Earth, but it does so much more! In this workshop, we explore the wonderful water molecule through a series of wet and wild challenges. Discover the magic of water using a selection of household items, and repeat at home to challenge family and friends.

Wind Things

Explore the science of flight through a series of construction activities, including a working model wing, a whirligig and a paper plane to take home.

Find out what it takes to 'lift off'! In this workshop we explore the science of flight through a series of construction activities. Investigate the roles of lift, drag, thrust and gravity to explain how things fly. Make a model wing, a whirligig and a paper plane to take home.

* The workshop activities described are for 60-minute sessions for up to 25 children. Most workshops can be adapted to run for different times and to suit different age groups (except MadLab - minimum age is 8 and usually the minimum time is 90 minutes).