



## Summer Camp Programmes 2020

Baden-Powell House, 65-67 Queens Gate, London SW7 5JS

- Daily Monday-Friday, 9.30-3.30 (8.45am free early drop-off) • Age 4-7 and 8-12
  - Taught by scientists with DBS checks in age adjusted & separated groups • Max 6 children/teacher
  - Secure outdoor space for breaks • 10% friends & siblings discounts
- Register: <https://www.littlehouseofscience.com/timetable/>

Week 1: 6-10 Jul	From Big Bang to Artificial Intelligence
Week 2: 13-17 Jul	Faster, Higher, Deeper, Further: Journey of Human Exploration
Week 3: 20-24 Jul	Introduction to Newtonian Physics
Week 4: 27-31 Jul	Who wants to be a Doctor? Scientific Story through the Medical World
Week 5: 3-7 Aug	Astrogeology: Exploration of Earth, other Rock Planets, Moons, Asteroids, Comets and Meteorites
Week 6: 10-14 Aug	History of Science: Explore the most Important Scientific Discoveries
Week 7: 17-21 Aug	The Nano World: Atoms, Molecules, Bacteria and Microorganisms
Week 8: 24-28 Aug	Who wants to be a Marine Biologist?
Week 9: 1 Sep-3 Sep	Introduction to Chemistry: Solutions, Mixtures, Acids, Alkaline and Polymers

### SUMMER CAMP WEEK 1: From Big Bang to Artificial Intelligence

Monday to Friday, 6-10 July 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years.  
Register [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)

#### Day One: Lost in Space

- Explore the universe, galaxies and black holes • How it all started: Big Bang • Protons, electrons and neutrons
- How stars were born? • What are supernovae and who was Fritz Zwicky • The Sun: Our own star!

#### Day Two: Back to Earth

- Size, shape, spin and age • How Henry Cavendish, Isaac Newton, Edmond Halley and Charles Lyell helped answer some important questions • Microorganisms or how it all started on Earth • Wonderful cells

#### Day Three : Evolutionary Journey

- Looking for fossils and Dinosaur Hunters • Mary Anning's excavations • Homo Sapiens: our evolutionary path
- How we came up with simple machines • The invention of the wheel

#### Day Four: Exploring History

- The scientific discoveries of ancient Egyptians • First Navigators: Leonardo da Vinci and his inventions • How electricity changed the world

#### Day Five: Reaching the Stars

- Rockets and space missions • Can we fly faster? Forces, Speed of sounds, Speed of light • Rosetta Mission and Voyagers • What is Artificial Intelligence?



## **SUMMER CAMP WEEK 2: Faster, Higher, Deeper, Further: Journey of Human Exploration**

**Monday to Friday, 13 -17 July 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. Register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)**

Join us for a week of discoveries of the most amazing inventions of humanity: hot air balloons, airplanes, rockets, cars, submarines and Mars exploration rovers! We will also learn the stories of people who wanted to explore the unknown and dared to dream big!

### **Day One: Let's Move!**

- Simple Machines Wheels and Axel • Steam Engine and James Watts • Motors: the evolution of cars • Driving faster than the speed of sound in supersonic cars • Green energy

### **Day Two: Up in the Air**

- Brothers Montgolfier and first hot air balloons • Feathers, Birds and Bats • The Secret of Flight • From Davinci to Wright Brothers • Roaring into the Jet Age

### **Day Three: Adventure in Rocket Science**

- Konstantin Tsiolkovsky and the first rockets • Beat the gravity: Blast off (forces of aerodynamics) • Sputniks, Space shuttle, Apollo 13, ISS • Engineering Design Challenges in building rockets • How fast is light? • How to become an astronaut

### **Day Four: Down under the Ocean**

- The science behind sink versus float • History of Navigation and great explorers • Tools we use to navigate • Brunel's Great Bog Ships • Deep Sea diving in a Submarines • Echolocation or how submarine see underwater

### **Day Five: The Shape of Things to Come!**

- Faster, further into the future! • Who wants to be an engineer • Space missions • Time travel and Wormholes?



## **SUMMER CAMP WEEK 3: Intro to Newtonian Physics - Physics is Everywhere**

**Monday to Friday, 20-24 July 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. To register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)**

### **Day One: Newton's Laws**

• What are Forces? • Isaac Newton and the Newtonian Laws • What is Energy • State of Matter • Density and the property of materials

### **Day Two: Force of Gravity**

• What is Gravity and its effect in our universe? • Galileo Galilei • Leonardo and the science of Flight • Rocket Science and how far can we get?

### **Day Three: Electrifying**

• Electromagnetisms and Light • Electricity and Circuits • Alexander Volta and the invention of the battery • Green Energy and New materials

### **Day Four: Strange Atoms**

• Introduction in Particle Physics • Strange Atoms • Weak and Strong Forces • The life of Stars • Stephen Hawking and the mystery of Black Holes • Is Time Travel Possible?

### **Day Five: The Physics of Sound**

• What are waves? • What is echolocation? • The invention of the telephone and how this changed us



## **SUMMER CAMP WEEK 4:**

### **Who wants to be a Doctor? Scientific Story through the Medical World**

**Monday to Friday, 27 July -31 July 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. Register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)**

#### **Day One: From Ancient Egyptians and Alchemy to modern medicine**

• Who was Elisabeth Garrett Anderson? • Human Body: looking inside the body • The macroscopic body: Inside the cell

#### **Day Two: Good and Bad Bacteria**

• How Alexander Fleming saved millions on lives • Germ Attack: Edward Jenner and the vaccination • Immunity: the body defense system

#### **Day Three: Medical Discoveries savings Life's**

• Joseph Lister and the antiseptic • Controlling Germs: Louis Pasteur's Invention • The chemistry of our body • Then heart and circulation

#### **Day Four: Senses & DNA**

• Eyes and seeing or who wants to be an ophthalmologist? • Our five senses • The body's framework and muscle power • DNA: the chemical of life

#### **Day Five: The Nervous System**

• The map inside our brain or can we see inside a person's brain? • Healthy nutrition and the elements in our bodies • How to be healthy!



## **SUMMER CAMP WEEK 5: Astrogeology: Exploration of Earth, other Rock Planets, Moons, Asteroids, Comets and Meteorites**

Monday to Friday, 3-7 August 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. To register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)

### **Day One: What is beneath our Feet?**

- Welcome to Earth: size, shape, spin and age
- How Henry Cavendish, Isaac Newton, Edmond Halley and Charles Lyell helped answer some important questions
- How do scientists know what is inside the Earth?
- Inge Lehman: the geologist who discovered Earth's deepest secret

### **Day Two: Rocks and Minerals**

- Exploration of Crystals
- Who wants to be a volcanologist?
- The science behind earthquakes
- Plate Tectonics and Richter Scale

### **Day Three: What is astrogeology?**

- Our closest neighbour, the Moon
- Our Solar family of rocky planets: Mercury, Venus, Mars
- Can we colonise Mars?

### **Day Four: Rocks in Space**

- Moons, Comets, Meteorites and other rocks
- Rosetta Project
- The hidden world beneath the Antarctic Ice Sheet
- Exoplanets and how we look for them

### **Day Five: Take a closer look at our Planet**

- Soil and the Microorganisms
- Erosion, rains and winds
- What is the shape of the ocean floor
- Rachel Carson and what she did for our planet



## **SUMMER CAMP WEEK 6: History of Science: Explore the most Important Scientific Discoveries**

**Monday to Friday, 10-14 August 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. Register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)**

### **Day One:**

• Franklin, Crick & Watson and the secret of DNA • Stephen Hawking and the black holes • Albert Einstein invented one of the two pillars of modern physics • The exploration of Sun and the launch of the Solar Orbiter • Leonardo da Vinci and his discoveries in Engineering

### **Day Two:**

• Jacques Cousteau and the invention of the aqualung • Robert Hook and the miraculous microorganisms • How Edward Jenner, Alexander Fleming, Marie Curie and Louis Pasteur saved the world • Elon Musk and the reusable rockets

### **Day Three:**

• Nicola Tesla and the giant thunder collector • Katherine Jonson and the rocket science • Archimedes and the crown challenge • Mary Anning's fossils

### **Day Four:**

• Galileo Galilei, Nicolaus Copernicus and the search for truth • Dorothy Hodgkin and the world of crystals • Leonard da Vinci and the secret of flight • Kingdom Brunel and his big engineering dreams

### **Day Five:**

• Charles Darwin and the survival of the fittest • Alessandro Volta and the first battery • Inge Lehman and the science of earthquakes • Rachel Carson or how to take care of our planet • Newton's Forces



## **SUMMER CAMP WEEK 7: The Nano World: Atoms, Molecules, Bacteria and Microorganisms**

Monday to Friday, 17-21 August 2020, 9.30-3.30 (8.45am free early drop-off),  
4-7 and 8-12 years. To register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)

### **Day One: Nano is Everywhere**

- What is nano or Atoms everywhere? • Introduction in Quantum Physics • Who was Albert Einstein? • Stephen Hawking and his discoveries

### **Day Two: Reactions**

- How Atoms interact? • What is Temperature? • The world of Crystals • Chemical reaction?

### **Day Three: Fantastic Cells**

- Fantastic Cells • Robert Hook and his discoveries • The nano world of human body • How do neurons work?

### **Day Four: Germs**

- Bacteria: the germ and the viruses • Powerful fungus and mega mould • How John Snow saved the world • How do we catch cold • Edwards Jenner and the medical revolution

### **Day Five: The Story of DNA**

- The nano world of the forensic science • Carbon and other elements • What is light made of?



## **SUMMER CAMP WEEK 8: Who wants to be a Marine Biologist?**

**Monday to Friday, 24-28 August 2020, 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years. Register: [https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)**

### **Day One: Oceans**

- Intro to the Oceans and the its Zones • Why are the Oceans Salty? • Who wants to be a Marine Biologist? • Jacques Cousteau and how hanged the world • The origins of life in the oceans

### **Day Two: Sea Life**

- Deep Ocean, Mariana Trench and James Cameron expedition • Eugene Clack and the wonderful world of sharks • How fish breath: lungs vs gills • Bioluminescence and how it works • Squids and Octopuses

### **Day Three: Evolution of the Sea**

- How Charles Darwin explored the ocean life • Oceanic currents • The science of waves • Let's study kelp forests • The world of Sea Turtles

### **Day Four: Sea Creatures**

- Frozen Oceans and life under and above the ice • Water cycles • Creatures with no brains or the amazing jellyfish • What can we learn from dolphins? • Fascinating world of whales

### **Day Five: Ocean Conservation and Exploration**

- Ocean Conservation and how can we help • Oceanic Food chains and food webs • The chemistry of H<sub>2</sub>O • The future of ocean explorations





**SUMMER CAMP WEEK 9:  
Introduction to Chemistry: Solutions, Mixtures, Acids, Alkaline  
and Polymers**

Tuesday to Thursday 1-3 September 2020 (3 days), 9.30-3.30 (8.45am free early drop-off), 4-7 and 8-12 years; to register:

[https://www.littlehouseofscience.com/holiday\\_workshops](https://www.littlehouseofscience.com/holiday_workshops)

**Day One: The History of Chemistry**

• What are atoms and molecules • How Alchemy became Chemistry • What are chemicals • The quest for elements • Elements and compounds • Elements in our bodies • The story of Carbon • Oxygen Everywhere! What is air made from

**Day Two: States of Matter**

• What is density • Properties of materials • Chemical and non-chemical reactions • Endothermic Exothermic reaction • Temperature: heating and cooling down • Learn about metals • The world of crystals

**Day Three: All about Liquids**

• All about liquids and non-Newtonian Liquids • Dissolving versus melting • Reversible/Irreversible Reactions • Acids and Alkalis • The story of hydrogen (H<sub>2</sub>O) ? • Marie Curie's and Rosalind Franklin's and her discoveries