

# Summer Science Camp 2022

Choose from daily or weekly camps, 9.30-3.30 (8.30am free early drop-off), 4-7 and 8-12 years, (age adjusted & separated groups)

#### Holiday Inn Kensington High Street, Wrights Lane, London W8 5SP, (with secure outdoor space for breaks), 2 mins from Kensington High Street and 10 mins from Earls Court tube station)

- Mon-Fri, 11-15 Jul | Fascinating Animal World
- Mon-Fri, 18-22 Jul | Science Geniuses Who Changed the World
- Mon-Fri, 25-29 Jul | Amazing Secrets of Energy
- Mon-Fri, 1-5 Aug | Astrogeology: Exploration of Earth, Other Planets, Moons, Asteroids, Comets, and Meteorites
- Mon-Fri, 8-12 Aug | Journey to the Centre of Biology: From the Micro World of Bacteria to Humans
- Mon-Fri, 15-19 Aug | Meet the Elements A Journey Through Chemistry
- Mon-Fri, 22-26 Aug | The World of Architecture

# Week 1: Fascinating Animal World

#### Day 1, Monday, 11 July 2022

- Animals World and Classification
- Vertebrates versus Invertebrates
- Exoskeletons, Do They Make Animals Stronger?
- Amazing Jellyfish

#### Day 2, Tuesday, 12 July 2022

- Cold Blooded versus Worm Blooded
- What is Blood
- What can we learn from Reptiles?
- Who was Joan Procter?

#### Day 3, Wednesday, 13 July 2022

- What Are Ecosystems and Biomass?
- Food and Web Chains
- The Amazing World of Ants
- What are Arachnids?

#### Day 4, Thursday, 14 July 2022

- Imagine a World Without Bees
- Extremophiles and Other Aliens
- Snails and Slugs and some Secrets of Mathematics

#### Day 5 , Friday, 15 July 2022

- How Life came out of Oceans
- How Sharks can Teach us to Swim Faster
- Mammals' vs non-Mammals
- Magnificent Amphibians

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# Week 2: Science Geniuses Who Changed the World

#### Day 1, Monday, 18 July 2022

- Nicola Tesla and the giant Thunder Collector
- Katherine Johnson and the Rocket Science
- Archimedes and the Crown Challenge
- Mary Anning's Fossils

#### Day 2, Tuesday, 19 July 2022

- Vera Rubin and the search for Black Matter
- Robert Hook and the miraculous Microorganisms
- How Edward Jenner, Alexander Fleming and Louis Pasteur saved the World
- Elon Musk and the Exploration of Mars

#### Day 3, Wednesday, 20 July 2022

- 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 4, Thursday, 21 July 2022

- Charles Darwin and the Survival of the Fittest and most Adaptable
- Inge Lehman and the Science of Earthquakes
- Alfred Wegener and Pangea
- David Attenborough or how to take care of our Planet

#### Day 5, Friday, 22 July 2022

- Robert Hook and the World of Invisible
- Stephen Hawking and Black Holes
- Isaac Newton and his Laws of Motion and Optics



## Week 3: Amazing Secrets of Energy

#### Day 1, Monday, 25 July 2022

- What is Energy?
- A History of Energy/Use of Energy in our Homes
- Universe of Energy: Energy from Stars and Galaxies
- Our Closest Star the Sun

#### Day 2, Tuesday, 26 July 2022

- What is Photosynthesis?
- Food as Energy
- What is Heat and Temperature ?
- Chemical Energy

#### Day 3, Wednesday, 27 July 2022

- Light as a Source of Energy
- How Newton Discovered the Secrets of Universe
- Bioluminescence
- Can Storing Energy: from Volta to the invention of Fuel Cells
- Can we break the Speed of Light?

#### Day 4, Thursday, 28 July 2022

- The Nature of Sound and Vibrations
- How Do we Detect Sounds?
- Seeing with Sound: Echolocation
- What is Gravity and what is Gravitational Potential Energy?

#### Day 5, Friday, 29 July 2022

- What is Electricity?
- How Benjamin Franklin Collected Electric Charges from Thunderclouds
- What are Atoms?
- Green Energy: Wind Energy and Hydro Electricity



# Week 4: Astrogeology: Exploration of Earth, Other Planets, Moons, Asteroids, Comets, and Meteorites

### Day 1, Monday, 1 August 2022

- 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 2, Tuesday, 2 August 2022

- Rocks and Minerals
- Exploration of Crystals
- Who Wants to be a Volcanologists?
- The Science Behind Earthquakes
- The Story of Pangea
- Tectonics Plates and the Richter Scale

#### Day 3, Wednesday, 3 August 2022

- What is astrogeology?
- Our Closest Neighbour, the Moon
- Our Solar family of Rocky Planets: Mercury, Venus, Mars
- Can we Colonise Mars?

#### Day 4, Thursday, 4 August 2022

- Moons, Comets, Meteorites and other Rocks in The Space
- Rosetta Project: Landing on a Comet
- The Hidden world beneath the Antarctic Ice Sheet
- Exoplanets and how we look for them Fossils and the mysterious disappearance of Dinosaurs

#### Day 5, Friday, 5 August 2022

- 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



# Week 5 : Journey to the Centre of Biology: From the Mini World of Bacteria to Humans

#### Day 1, Monday, 8 August 2022

- From Amebae to Humans
- The Life of the Cell: The Perfect Mini Factory
- The Secret of Mitochondria
- Lynn Margulis and the Ideas of Symbiosis

#### Day 2, Tuesday, 9 August 2022

- Robert Hook and the Invention of The Microscope
- Viruses: Are Aliens Leaving Amongst Us?
- Microorganisms and their Importance
- What is Vaccination and Why We Need It?
- Who was Edward Jenner?

#### Day 3, Wednesday, 10 August 2022

- What Are Nutrients?
- Digestive Ride or the Journey of your Breakfast
- Respiratory System in Humans and Animals
- All about our five Senses

#### Day 4, Thursday, 11 August 2022

- What is Calcium: Skeletons and Teeth
- Hearing and Vision in the Animal World
- Why our Brain is so special?

#### Day 5, Friday, 12 August 2022

- What is Marine Biology?
- Eugenie Clark and Her Research About Sharks
- All about Jellyfish
- Veterinary or who wants to be a Vet?



# Week 6: Meet the Elements - A Journey Through Chemistry

## Day 1, Monday, 15 August 2022

- What is Chemistry?
- From the first Alchemists to modern Chemists.
- What is the Matter? Incredible Atoms and the Periodic Table
- Hydrogen and Helium: The Universe's first Elements
- Chemical bonding: How the Elements interact

## Day 2, Tuesday, 16 August 2022

- Explosive Chemical Reactions and amazing physical changes
- What are the States of Matter? From the coldest Condensates to the hottest Plasmas
- The Properties of Matter Amazing Materials of the Future!
- Non-Newtonian Liquids that break all the Rules!

#### Day 3, Wednesday, 17 August 2022

- The Power of Hydrogen: Corrosive Acids and Caustic Alkalis
- The Magic of Water, and its Evil Twin, Hydrogen Peroxide
- The Element of Life: Adventures with Carbon.
- Can you freeze a Gas? Experiments with Carbon Dioxide
- Radioactive! Marie Curie and the most dangerous Elements

#### Day 4, Thursday, 18 August 2022

- Heavy Metal: The Metallic Elements and their Properties
- The superpowers of Iron and Copper
- Dazzling Polymers and How to Make Them!
- Plastic and Paper: Recycle, Reuse, and Reduce!

#### Day 5, Friday, 19 August 2022

- What is Density? Can you stack liquids?
- The Elements in Your Body!
- Dorothy Hodgkin and the Beautiful World of Crystals
- Experiments with Chromatography- the Chemistry of Colour



# Week 7: The World of Architecture

## Day 1, Monday, 22 August 2022

- Engineers or Architects?
- Architectural Landmarks
- Egyptian Pyramids, The Coliseum and The Duomo
- Properties of Materials

## Day 2, Tuesday, 23 August 2022

- The Invention of the Simple Machines
- How the Wheel Changed the Word
- The Science of Force in Bridges
- Let us Build Columns
- Beams, Vaults and Arches

## Day 3, Wednesday, 24 August 2022

- Who was Antonio Gaudi?
- Diversity of Houses
- Introduction to Towers

#### Day 4, Thursday, 25 August 2022

- Who wants to be an Engineer?
- Naval Architecture: Liners, Hovercrafts, and Submarines
- Animal Architects
- Who was Islamabad Kingdom Brunel?

#### Day 5, Friday, 26 August 2022

- Zaha Hadid and other Architects arrived form the Future
- How Climate affects Architecture and vice versa
- Sustainable Architecture
- Design your own home