

# Cool Chemistry

## Entry Task

Watch a variety of short clips of Scientists conducting simple investigations for children. Have a go of one of them.

Can I **explore**, compare and group together everyday items on the basis of properties? (Scientific Enquiry)

Can I give reasons based on evidence for uses of everyday materials? (Scientific Enquiry)

Can I explain the property difference between solid, liquid and gas? How can solids, liquids and gases be changed from one state into another? (Scientific Enquiry)

Can I explain which materials conduct heat and why?

### Let's Investigate

Can I explain if all solids dissolve? (Scientific Enquiry)

Can I explain **irreversible and reversible** changes to states of matter (solid, liquid and gas)?

## What to revisit?

Year 4 Science - Compare and group solids, liquids and gases.

Year 4 Science - Understand changing of states when being heated or cooled, measuring temperatures.

Year 3 & 4 Geography - To develop an understanding of eight points of a compass to give directions across a map.

## Threads

Exploration, Reversible/irreversible

Can I **explore** how to separate mixtures using filtering, sieving, magnetism and evaporating and explain the processes? (Scientific Enquiry)

Can I explain that some changes result in the formation of new materials and this change is usually **irreversible**? (Scientific Enquiry)

## Big Question

How are materials similar and different?

Can I create a program to control my light linked to physical systems and sensors e.g. light turning on when button held?

Can I create a questionnaire to gain feedback on my product? Can I complete an evaluation sheet including suggesting how I might amend my product following feedback?

Can I build a circuit for use within my night light, choosing the appropriate components? Can I draw and label the symbols for different circuit components?

Working safely, can I select and use the correct equipment materials and techniques (measuring, cutting, fixing and finishing) appropriately to make by night light?

Can I create my final design and communicate ideas using computer aided design? (Tinkercad)

Can I distinguish between conductors and insulators? Can I produce a mock up circuit for my light by investigating a range of switches? (slider switch, toggle switch, push switch)

What is electricity? Can I distinguish between mains electric and batteries and understand the safety precautions needed when handling both?

Can I research existing night lights exploring their designs as inspiration? Can I develop a design brief for a battery powered night light considering FLUMPS?

Can I identify and locate input and output devices on a range of existing electrical products? What is a circuit? (Revisit Y3)

Who is Thomas Edison and how have his inventions changed design and technology in our world?

Can I disassemble some electrical circuits in products to begin to think about how they may work? (torch, toy, timer) Can I use annotated sketches to model a range of simple series circuits?

Can I investigate a range of existing electrical products considering FLUMPS? Can I argue which electrical products are more suitable to meet a range of given users needs listing its pros and cons?

## Celebration/Evaluation

Children will provide a demonstration and verbal explanation of how their light works to older members of school and use it to read a story to younger members of school.

## Curriculum Passport Challenge

School Visitor— Mad Scientists to visit school and carry out a range of investigations for children to participate in.

## Key Vocabulary

**As a scientist, I will use...** Irreversible, dissolve, soluble, insoluble, solvent, solute, solution, filter, sieve, saturation, thermal, chemistry, change state, condensing, particle, residue, rusting, thermal conductivity

**As a design technologist, I will use...** electricity, input, output, device, product, circuit, exploded diagram, battery, bulb, bulb holder, vertical, horizontal, conductor, connection, switch, crocodile clip, fault, insulator, parallel circuit, series, prototype, Thomas Edison, slider switch, toggle switch, push switch, computer aided design CAD, questionnaire, measuring, cutting, finishing

DRIVER SUBJECTS ARE SCIENCE & DT