Creating A Colourful Life – Links to National Curriculum

On these pages is a list of how the experiments we have developed relate to the national curriculum. The experiments are designed so that they can be adapted to maximise pupils learning. Demonstrators from the University guide pupils and answer questions.

Science at Key Stage 1 and 2

1	The difference between a pigment and a dye	Pupils learn the difference between a pigment and a dye through an interactive demonstration	Unit 1C – Sorting and using materials Unit 3C – Characteristics of materials Unit 6C – More about dissolving Unit 6D – Reversible and irreversible changes
2	Pupils make pigments from chemicals	Pupils use simple laboratory techniques to prepare three pigments	Unit 2D – Grouping and changing materials Unit 3C – Characteristics of materials Unit 4D – Solids, liquids and how they can be separated
3	Thermochromic paints	Pupils use thermochromic paints on pottery	Unit 2D – Grouping and changing materials Unit 4C – Keeping warm Unit 6D – Reversible and irreversible changes
4	Photochromic beads	Pupils use photochromic beads to make a wrist band	Unit 1D – Light and dark Unit 5E – Earth, sun and moon
5	Pigments for security	Pupils explore security markings on passports, drivers license and money	Unit 1D – Light and dark
6	Demonstration of different smart pigments	Pupils explore modern pigments on cars	Unit 1D – Light and dark Unit 4C – Keeping warm Unit 6D – Reversible and irreversible changes
7	Make paints egg tempera style	Pupils use ancient pigments and modern pigments to make egg tempera paint	Unit 2D – Grouping and changing materials Unit 3C – Characteristics of materials Unit 3D – Rocks and soils
8	CSI colours in Ink	A crime scene investigation is undertaken, where pupils use chromatography to identify a criminal's pen.	Unit 4D – Solids, liquids and how they can be separated
9	Food dye experiment	Pupils use chromatography to separate out the colours in food dyes	Unit 4D – Solids, liquids and how they can be separated
10	Invisible ink	Pupils make an acid and an alkali invisible ink and then use an indicator to reveal a message	Unit 6C – Dissolving solids

Science at Key Stage 3

1	Invisible ink	Pupils make an acid and an alkali invisible ink and then use an indicator to reveal a message	Unit 7E – Acids and alkalis Unit 7F – Simple chemical reactions
2	Pupils make pigments from chemicals	Pupils use simple laboratory techniques to prepare three pigments	Unit 7F – Simple chemical reactions Unit 7H – Solutions Unit 8F – Compounds and mixtures Unit 9H – Using chemistry

Science at Key Stage 3 (ctd)

3	Colour in fireworks	Pupils observe different metals being burned	Unit 7F – Simple chemical reactions Unit 7H – Solutions
4	The difference between a pigment and a dye	Pupils learn the difference between a pigment and a dye through an interactive demonstration	Unit 7H – Solutions
5	Photochromic beads	Pupils use photochromic beads to make a wrist band	Unit 8K – Light Unit 9C – Plants and photosynthesis
6	Pigments for security	Pupils explore security markings on passports, drivers license and money	Unit 8K – Light
7	CSI colours in Ink	A crime scene investigation is undertaken, where pupils use chromatography to identify a criminal's pen	Unit 7H – Dissolving and separation of solutions.

Science at Key Stage 4

1	Pupils make pigments from chemicals	Pupils use simple laboratory techniques to prepare three pigments	Unit C2 – Changing materials Unit 3 – Patterns of behaviour
2	Colour in fireworks	Pupils observe different metals being burned	Unit 3 – Patterns of behaviour
3	Photochromic beads	Pupils use photochromic beads to make a wrist band	Unit C2a – Learn about photochromic pigments
4	Thermochromic paints	Pupils use thermochromic paints on pottery	Unit C2a – Learn about thermochromic pigments
5	Pigments for security	Pupils explore security markings on passports, drivers license and money	Unit C2a – Learn about phosphorescent pigments

Science at A-level

1	Pupils make pigments from chemicals	Pupils use simple laboratory techniques to prepare three pigments	Module 1 – Atoms and reactions 5.3.1 – Transition elements
2	Invisible ink	Pupils make an acid and an alkali invisible ink and then use an indicator to reveal a message	Unit 1.1.3 – Acids and bases
3	CSI and Food Dye	Chromatography experiments are undertaken to solve a crime and explore colours in food dyes	Module 3 – Analysis

Links to other areas of the national curriculum

Key stage 1 and 2	Experiment 7 could be linked to art and design unit 3B
	Experiment 2 could be linked to art and design unit 1B, and design and technology units 2D and 4A.
	Experiment 9 could be linked to art and design unit 1B
	Experiment 1 could be linked to art and design unit 1B