



The Lioncare School

Curriculum Map 2022-23 Summer Term Project: Light

Introduction

The primary task for the adults working at The Lioncare school is to foster a sense of engagement and enjoyment in learning, break down the fear and resistance that has been acquired through disrupted early years and through this grow the skills and capacity of our children to engage positively and productively with the world. It is our experience that a project-based approach, underpinned by targeted literacy and numeracy interventions, is a successful way offering both the breadth and depth necessary for our therapeutically informed, child centred curriculum model.

In June 2017 OFSTED stated:

The curriculum meets the needs of pupils well. The enrichment of pupils' experiences through the curriculum is particularly strong. The school's curriculum ensures that pupils have the opportunity to make progress in a range of subjects.

In December 18 they reported

The school enables pupils to study a large range of subjects, and work is tailored to meet each pupil's specific needs. Pupils, including those who are most able, are given the opportunity to explore subjects in considerable depth... Leaders have developed a set of themes which have been designed to help pupils develop their life skills.

In September 2021 our inspectors said

Pupils love the topics they study. Leaders have developed a curriculum that can be adapted to meet pupils' specific needs. The curriculum equips pupils with the vital knowledge that they must learn.

Each year The Lioncare School runs three whole school projects. These are planned to offer breadth across three of our curriculum areas- The Human Curriculum, The STEM Curriculum and The Creative Curriculum. All projects allow for ongoing progress in all subjects but the shift in focus each term allows for the class teacher, curriculum leads, and school managers to plan for deeper learning opportunities, to monitor progress and to gap-fill areas of learning that emerge for individuals and for class groups.

For 2022/3 the Projects are *The World Of Sport* (Human Curriculum), *Moving Pictures* (Creative Curriculum) and *Light* (S.T.E.M Curriculum). Upcoming Projects include *Ancient Egypt* (Human Curriculum) , *The 1980s* (Creative Curriculum) and *The Properties of Materials* (S.T.E.M Curriculum).

Light is the first Human Curriculum project under the newly revised version of Curriculum 2020 (C2020), the Curriculum Framework for our therapeutic education model. C2020 has been formulated to acknowledge the unique profiles of the children placed at the Lioncare School - characterised by disrupted early learning experiences, interrupted formal schooling, disengagement from mainstream settings, distrust of adult and professional input, continuous high levels of anxiety and emotional arousal due to trauma and disrupted attachments, and the resultant cognitive, sensory and social impairment. C2020 is based on the following principles:

- All young people, whatever their start in life, and however they challenge, defy and subvert expectations, deserve the joy of learning and opportunities for success.
- The capacity to learn from experience and, from this, work towards goals, strive for achievement and acknowledge success, is a pivotal positive factor in a healthy and productive adult life.
- Learning also contributes to a rich and fulfilling life through our intrinsic development - self-belief, our joy in discovery and creativity, the enriched understanding of our world and, most of all, the relationships that develop as part of the process.
- For our children and young people the best route to such outcomes is to foster a skill set that engenders confidence, interest, enquiry, interdependence, reflection and resilience: knowledge will follow.
- The abilities and needs of each child are unique and must lead the curriculum, not follow it.
- Living is learning and all adults who interact with our children contribute to their curriculum.

C2020 is made up of our three tiers of learning: PERSONAL DEVELOPMENT, PARTICIPATION and MAKING GOOD PROGRESS.

PERSONAL DEVELOPMENT is made up of four curriculum areas (*Being at School, Communication, Being Safe and Healthy, and Moving On*) that thread through all areas of living and learning.

PARTICIPATION is split into four curriculum areas (*Learning Together, Community, Belonging and Difference, and Activities*) that sit at the centre of our community-led approach to learning and development.

MAKING GOOD PROGRESS is made up of four curriculum areas (*Human, Creative, STEM and Functional*) which offer a broad and balanced academic curriculum that addresses gaps in learning and fosters opportunities for achievement for however long a child or young person is placed with us.

The subjects within these areas are defined by a small list of skills (Key Performance Indicators) that are the backbone of our work. Children and young people are set personalised, age appropriate learning objectives within these KPI and are assessed against these regularly as they progress through school, using a range of formal and informal mechanisms.

As **Light** is a S.T.E.M project, it will have the primary task of developing individual skills as described by our Key Performance Indicators for Science, with input towards Technology and Application of Number also planned for. This Curriculum Map will detail these and suggest activities that best foster these. It is up to individual class teachers to develop and deliver these in the way best suited to individual young people with consideration given to the age appropriate knowledge outlined in the National Curriculum. For this project the focus of the project will be based on the expected outcomes for Years 3-6 wherein children should be taught to:

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eye

Children who show that they can confidently achieve these outcomes within the project will be given opportunities to extend their learning to cover the following key stage three outcomes:

- the similarities and differences between light waves and waves in matter
- light waves travelling through a vacuum; speed of light
- the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface
- use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye
- light transferring energy from source to absorber, leading to chemical and electrical effects; photosensitive material in the retina and in cameras
- colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection

Education Reports at the End of this Project will give an overview of attainment against age related expectations for Science.

Light also allows for the underpinning of our Literacy and Numeracy and opportunities for further development of the skills outlined in the KPI for the Human and Creative Curricula.

Light will also provide opportunities to explore a number of social and emotional issues that are live for the school community. There will be a focus on Light in our daily lives and how it is generated, used and , perhaps, taken for granted.. This will lead to discussions regarding sustainability and responsible membership of the global community. Related will be some experiential learning about life without light, natural or artificial -either in the past, in other regions of the world or due to a sensory impairment. This will lead to a relativistic assessment of quality of life and what makes for a “good-enough” lifestyle despite difference.

The following principles will apply to our project, *Light*.

- 1) Knowledge and skills are not acquired in a vacuum. The context for the sources and stimuli for activities will be considered in an age appropriate manner and will include both historical and contemporary themes and issues. Children with deprived and neglectful backgrounds may not have experienced formative opportunities to observe the influence of personal or global narratives in a healthy, coherent way. This project aims to provide the potential for fuller participation in peer, adult and community mediated life by broadening contextual understanding of the wider world.
- 2) Adult uncertainties will be embraced. If schools are to be true learning communities then dividing them into adults that know all and children that know nothing is reductive. While teachers will be expected to plan their lessons and use of resources professionally, all adults should be prepared to pause to consider issues that arise and give time for research, discussion and exploration in all forums. Adults should expect to sensitively, safely and professionally reflect on their own experiences and at all times ensure their views on cultural and personal transformation are professional and unbiased.
- 3) The Lioncare School strongly believes that its group-learning ethos provides consistent, meaningful coverage of core values. The themes of participation, representation, inclusion and tolerance, expressed in discussion of the themes of our project will give a plentiful opportunity for young people to explore their feelings, thoughts and opinions on how the groups they live, and learn, function. This will be underpinned by our annual Democracy Day on May 19th when the school community will vote on matters of significance to its day to day life.
- 4) Specific targets set for English/Literacy and Maths/Numeracy, following assessment, which are recorded on reports and monitored via our child centred systems, including Live Monitoring Forms, Education Reports and Behaviour Watch, should underpin the personalised work for each young person. Work should be recorded in relevant workbooks and be evaluated following the Lioncare School Assessment and Accreditation Policy. Planned work should be informed by P:\Curriculum Plan\2014-15 National Curriculum and https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335186/PRIMARY_national_curriculum_-_English_220714.pdf and <https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study> which sets out specific skills to be taught at each stage. It is expected that these subjects be taught through both embedded and discrete approaches.

Key Performance Indicators for these areas are detailed in the Appendix below.

The Curriculum Maps for each project and personal learning plans form the Lioncare School Scheme of Work.

Key Performance Indicators For Science

I can experience and observe phenomena, by looking more closely at the natural and humanly-constructed world around me

I can experience and observe how changes occur over a period of time

I can be curious and ask questions about what I notice

I can look for patterns and sequences and make comments on these

I can understand what makes good evidence, a fair test and a sound argument

I can research and understand the information I find and how to use it

I can present conclusions using data in a range of formats, including verbally

I can link my learning to my world

Key Performance Indicators For Technology

I can identify a need or problem and produce a brief (what my product must be, have and do, who and what for, where, when and why) to meet the need

I can research existing solutions and evaluate them against my brief

I can formulate a specification (everything my product must have, ideally have and other features that would be useful) based on my research and brief.

I can generate, model and communicate my own ideas in a range of ways, including ICT

I can make a plan, including materials/shopping lists and budgets

I can make a prototype and test it, evaluating my ideas against my specification and developing them further

I can create my solution, using the correct equipment, safely, including production in job (one-off **production**), batch (**multiple** items, one step at a time for all items), and have an awareness of flow production (**multiple** items, all steps in process at once for separate items)

I can communicate the processes I used and feedback in a range of media

I can evaluate my progress at every stage

Key Performance Indicators For Computing

I can recognise ways to use ICT in my learning.

I can recognise ways ICT is used beyond school

I understand computer networks and how they provide opportunities for communication and collaboration

I can use technology safely, respectfully and responsibly

I can use technology to create, organise, retrieve and find things

I can understand how searches work and evaluate what I find

I can use technology to present information to others

Topics of study

1) Light and Dark

Children will learn what light is as a scientific phenomena (something that makes visual perception possible) and that the absence of it is dark. They will learn about different sources of light and causes of dark-this will include both natural and artificial mechanisms. They will learn about the sun (including the dangers of looking at it directly) and how the rotation of the earth explains day and night. In this topic they will look at how shadows form and react to changes in the light source and then formulate hypotheses as to what could explain their observations. Scientific and descriptive language will be taught to help them describe their experience of what they see and do both scientifically and more subjectively.

2) How Light works

Through a series of practical experiments in class and outside the children will learn about how light travels and how this can be observed in shadows and other phenomena. At a level suitable to their understanding children will be introduced to associated concepts such as reflection, refraction, scattering and dispersion

3) **Light in our lives**

This topic will explore how light is generated, used and adapted by people in everyday life and specialist settings through technology including cameras, the cinema, computers etc and how light is celebrated across cultures and societies due to its importance to us as human organisms.

4) **The eye**

Children will learn about the basic structures and anatomy of the eye, good eye health, the role of the optician in our day to day health and consider what it might be like to have a visual processing impairment.

Difference

It is a core strand of The Lioncare School's approach to Equality and Diversity that the Curriculum Map for each Project will include an explicit statement on how the work will contribute to the understanding of difference and the promotion of respect, tolerance and participation in the school community.

For **Light** this will happen through young people:

Understanding that children in different global and local communities may have a different standard of living to that which our community may consider good enough

Recognising that the decisions we make about our lifestyle may contribute to inequality

Experience the views of those who make different lifestyle choices and show how to communicate tolerance of these differences

Having opportunities to discuss how they as individuals and The Lioncare School as a community may want to take action around sustainable living

Being supported to enter conversations about who is "lucky" in life, the manifestations of envy and greed this can promote and an assessment of individual lives where material comfort may or may not be felt to offset emotional or social deprivation.

Understanding that an essential human connection to light and dark through stories, religion, celebration and ritual is an almost universal experience that reinforces unity and similarity.

Texts and resources

<https://www.youtube.com/watch?v=d7yTlp4gBTI>

<https://www.youtube.com/watch?v=ydfeJQ2cWv0>

<https://www.bbc.co.uk/bitesize/topics/zbssgk7>

<https://www.twinkl.co.uk/resources/ks2-science/ks2-science-physical-processes/ks2-light-and-sound>

<https://www.stem.org.uk/resources/community/collection/12741/year-6-light>

<https://www.everyschool.co.uk/science-key-stage-2-light.html>

https://www.outstandingscience.co.uk/index.php?action=view_page&page=view_unit&unit=6d

<https://buggyandbuddy.com/light-experiments-for-kids/>

Participation

Relevant Key Performance Indicators for classroom based aspects of this project under the Participation tier may be found in *Work and Learning* and *Making a Contribution*.

For offsite elements the KPI can be found in *Being Safe Activities and Play* and *Physical Development*

PE activities for Summer 2022 include Bouldering, Park Sports, Swimming, and Watersports at Hove Lagoon

Activities:

The Lioncare School runs a trip or activity each Friday and these are a balance between curriculum enrichment (Progress), community awareness (Participation) and skills (Personal Development).

Activities Planned for May-July 2022 Include:

Curriculum	Community	Skills
Shoreham beach (shadows, water , refraction, reflection etc)	Sports Day	Swimming
Herstmonceux Observatory	Billionaire Boy Theatre trip	Bouldering
Practical Science	Use of Brighton Central library	Water Sports
Science Museum	Brighton and Hove schools safety in action day tbc	Water Safety
	Lazer zone	Globalls

	Thorpe park	Living off grid/ firemaking with "Out of bounds" or similar group