Bleakhouse Primary School

Substantive and Disciplinary Curriculum Knowledge

English

Substantive Knowledge

In reading, substantive knowledge is the ability to **decode and sight-read words.** To begin with, children will need a secure **knowledge of phonics.** This means that they will be able to hear phonemes, identify digraphs and trigraphs and match sounds to individual letters and groups of letters (phoneme-grapheme correspondences). They will then apply these skills to **blend the sounds** of letters to decode unfamiliar or unknown words. They will also need to sight read a range of tricky words to enable them to become fluent readers.

As they progress in their reading, children will begin to automatically recognise words, **reading with automaticity and pace.** This provides children with opportunities to read for pleasure, including reading and reciting poetry, and helps them to develop their **vocabulary.** Children are then able to apply their knowledge of reading strategies to **comprehend** a range of texts.

In writing, substantive knowledge includes understanding of **structural, grammatical and linguistic features**, as well as knowledge of **handwriting and spellings.** Children will begin with developing the knowledge of how to structure a simple sentence, **using accurate punctuation**, and will then learn how to combine sentences to **form paragraphs** to suit different writing genres. Through deliberate practice, this substantive knowledge becomes automatic and fluent, and children become confident in effectively **planning, drafting and constructing writing for different purposes.**

Disciplinary Knowledge

In both reading and writing, disciplinary knowledge is the **process of thinking critically and creatively** using the automaticity of substantive knowledge. Once children are fluent readers, who can understand that they have read, they begin to develop their disciplinary knowledge in reading. This also applies to writing: once children can confidently structure sentences using accurate punctuation and grammar, they are able to develop disciplinary knowledge in writing.

In reading, this involves the ability to **interpret different texts**, draw upon knowledge of language and literary conventions. It involves the skills of **supporting an opinion**, based upon evidence within the text, and **comparing and contrasting books** from a range of genres, written by a variety of authors. Children will develop the skill of comparing themes, drawing upon extracts from the text to **back up arguments and discussions** and **evaluating the intentions of the author**, and **expressing personal preferences**.

In writing, disciplinary knowledge is the ability to **evaluate and edit text** and apply substantive knowledge to **effectively write for a range of purposes**. Children will be able to adapt their writing to **suit different genres and audiences**, making **careful language and**

grammar choices. They will be able to edit and re-draft their writing, using tools such as dictionaries and thesauruses to help them. Children will **carefully structure** their writing in such a way as to **engage the reader**, maintaining their interest throughout.

Maths

Substantive Knowledge

In primary mathematics, **"substantive knowledge"** refers to the core facts, concepts, and principles that students need to know, like basic number facts (e.g. 2 + 2 = 4), multiplication tables, place value, geometric shapes, and basic measurement units - essentially the foundational building blocks of mathematical understanding that are considered essential knowledge within the subject area.

Disciplinary Knowledge

"Disciplinary knowledge" in primary maths refers to the understanding of how to work with mathematical concepts, including reasoning, problem-solving strategies, and the ability to apply mathematical knowledge to different situations, rather than just knowing basic facts (substantive knowledge).

Science

Science is the study of the natural world through observation and experiment.
Our science curriculum provides pupils with an understanding of both substantive and disciplinary knowledge.
Substantive knowledge- is the subject knowledge and explicit vocabulary used to learn about the content
Disciplinary knowledge– this considers how scientific knowledge originates and is revised. It is through disciplinary knowledge that children gradually become more expert by thinking like a scientist.

Substantive Knowledge: Concepts, models, laws and theories

Biology

- Living things and their environment (animals, humans, plants, habitats)
- Reproduction, inheritance and evolution (evolution, inheritance, life processes, life cycles)

Chemistry

- States of matter (solids, liquids, gases)
- Materials (properties and changes including reversible/irreversible changes,)

Physics

- Energy (light, sound, electricity)
- Forces (friction, air resistance, gravity, magnets)

Earth Science

- Earth and space (seasons, day and night, solar system and beyond)
- Rocks and fossils

Disciplinary knowledge: Working scientifically

Disciplinary knowledge is taught and embedded within the teaching of each unit of substantive knowledge.

- Methods used to answer questions (use of models, classification, correlations and patterns, experimentation, fair testing)
- Using apparatus and techniques (accurate measurement, collecting and recording data, carrying out procedures safely and accurately)
- Data analysis (processing and presenting data, exploring relationships, communicating results in tables / graphs, identifying correlations)
- Using evidence to develop explanations (using evidence / scientific knowledge to draw conclusions, explain laws, models, concepts and findings)

As part of working scientifically, which is embedded throughout all units, pupils will also learn to use a variety of enquiry strategies to answer scientific questions. Different questions lead to different types of enquiry and are not limited to fair testing. By the end of primary school, children will be able to use these enquiry strategies confidently and know that different strategies may be needed at different times.

- Observing over time: (observing or measuring how one variable changes over time)
- Identifying and classifying: (identifying and naming materials/living things and making observations or carrying out tests to organise them into groups)
- Looking for patterns: (making observations or carrying out surveys of variables that cannot be easily controlled and looking for relationships between two sets of data)
- Comparative and fair testing: (observing or measuring the effect of changing one variable when controlling others)
- Answering questions using secondary sources of evidence: (answering questions using data or information that they have not collected first hand) As well as this, pupils will learn about:
- Using models: (Developing or evaluating a model or analogy that represents a scientific idea, phenomenon or process)

Art and Design

The Art and Design curriculum can be split into three different types of knowledge. They are:

- Practical knowledge
- Theoretical knowledge
- Disciplinary knowledge

Substantive Knowledge		Disciplinary Knowledge
Practical Knowledge	Theoretical Knowledge	
This knowledge is necessary for when pupils make and create art.	This enables pupils to make connections between art's past, present and future. Theoretical knowledge puts practical knowledge into context.	Pupils learn how aesthetic judgments are formed; how art is studied and they participate in discussions about big ideas in art.
• Techniques • Media • Materials • Technical language • Formal elements of art education	• Art movements • Genres • Theme • Artists and their art • Context and significance	• Knowledge that enables pupils to hold dialogue and debate about art.

Computing

Declarative Knowledge

Declarative knowledge consists of facts, rules and principles. It can be described as 'knowing that'.

Procedural Knowledge

Procedural knowledge is knowledge of methods or processes that can be performed. It can be described as 'knowing how'.

Both types of knowledge are identified and connected in the Bleakhouse Primary Computing curriculum.

Design and Technology

Substantive Knowledge

Substantive Knowledge in **Design and Technology** at the primary school level refers to the core factual and conceptual knowledge that underpins the subject. This type of knowledge includes the 'what' of the subject – facts, principles and information that pupils need to understand and apply to solve problems, design and create products.

Disciplinary Knowledge

Disciplinary Knowledge in **Design and Technology** is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum. Knowledge in design and technology will equip the children with the opportunity to explain how and why products have changed over time and how they might be further improved in the future. They can use their knowledge and understanding to suggest how existing products may be improved with the advances in modern technology.

Geography

Disciplinary Knowledge

Disciplinary knowledge, which is described by Ofsted (2023) as the 'knowledge of how geographical knowledge is formed, debated and contested'. The discipline of geography has been developed through debate and shaped by what is investigated, when, where, how and by whom. In order for students to develop an under-standing of geography as a discipline, they need to learn the practices of geographers. These include:

Substantive Knowledge

Substantive knowledge, which includes factual knowledge of the world around us (e.g. locational knowledge of places); as well as knowledge about geographical phenomena (e.g. physical processes and economic systems). Substantive knowledge is established fact that is not open to debate.

History

Substantive Knowledge:
the core facts, events, figures, and concepts that are central to understanding historical periods, movements, or phenomena. it's the foundational knowledge that helps build a clear understanding of what happened in the past and why those events matter.

Disciplinary knowledge
is knowledge about how historians investigate the past, and how they construct historical claims, arguments and accounts - i.e. it is the knowledge of how to undertake a historical enquiry. Pupils learn disciplinary knowledge within relevant historical contexts (i.e. the substantive topics such as Ancient Greece) - through application to substantive knowledge. Units of learning are framed around central Big Questions which focus a unit of work on elements of this disciplinary knowledge. This knowledge of historical enquiry frames what pupils learn about the past, supporting them to consider the status of historical claims. It enables them to place their historical knowledge in a broad context. It helps pupils to understand the different version of the past can be constructed, and that historical narrative is partially dependent upon viewpoint.
Disciplinary knowledge is concerned with developing historical rational and critical thinking within enquiry, and can be categorised into 7 Disciplinary concepts that are systematically developed in our history curriculum:

- Historical Enquiry - asking questions, using sources and evidence to construct and challenge the past, and communicating ideas
- Cause - selecting and combining information that might be deemed a cause and shaping it into a coherent causal explanation
- Consequence - understanding the relationship between an event and other future events.
- Change and continuity - analysing the pace, nature and extent of change.
- Similarity and difference - analysing the extent and type of difference between people, groups, experiences or places in the same historical period.
- Historical significance - understanding how and why historical events, trends and individuals are thought of as being important.
- Historical interpretations - understanding how and why different accounts of the past are constructed

Modern Foreign Language – French

Substantive Knowledge

French substantive knowledge refers to the carefully sequenced factual content itself, like vocabulary words, key phrases and basic grammar rules.

Disciplinary Knowledge

French disciplinary skills refers to the specific skills needed to understand and effectively use the French language, including aspects like grammar rules, pronunciation, vocabulary usage and sentence structure allowing a learner to accurately communicate on French across different contexts.

Music

In primary music, "substantive knowledge" refers to the core musical facts and concepts children learn such as pitch, rhythm, and melody, while "disciplinary knowledge" refers to the skills they develop to apply this knowledge in practice, such as singing accurately, performing with expression, and understanding different musical styles/elements within a song.

Substantive Knowledge

- Identifying different musical elements like high and low notes, long and short sounds, and different tempos.
- Knowing basic musical vocabulary like "pitch," "rhythm," and "dynamics."
- Familiarity with a range of song genres and cultural contexts.

Disciplinary Knowledge

- Using proper vocal technique to sing in tune and with good breath control
- Interpreting lyrics and conveying emotions through singing
- Improvising and creating simple melodies
- Participating in ensemble singing, following a conductor or leader
- Listening critically to music and identifying key musical features

Physical Education

Substantive Knowledge

Substantive knowledge in PE is based on deliberate practice and development of specific skills that can be used in a variety of disciplines, sports and games. It is factual content, including subject-specific vocabulary, that teachers teach as established fact. Describing how their body feels and the need to stay healthy or applying rules in a game are examples in PE

Substantive Knowledge in Physical Education can be seen in two ways:	
Declarative Knowledge	**Procedural Knowledge**
Knowing What Knowledge about movement, and appropriately pitched knowledge of biochemical, psychomotor, anatomical, and sociological aspects that relate directly to physical activity in sport. (e.g. knowing what a warm up is and what it looks like; positions in a game; types of jumps in gymnastics)	Knowing How Knowledge in movement; this includes practical knowledge of the nature and principles underlying human movement (e.g. Being able to demonstrate a warm up; being wing defence in netball, or showing different jumps in gymnastics)

Disciplinary Knowledge

Disciplinary knowledge in PE comes through opportunities for the children to choose and apply their own actions, balances, movements and skills. In PE, an example of disciplinary knowledge is the confident and competent application of skills and strategy, such as outwitting an opponent to win a game. Once they have mastered the specific skills, they have opportunities to apply these within sports and games and therefore have to choose different strategies and the best way to approach different challenges. As they move through school, their skills and knowledge around tactics become more complex and they have to work collaboratively to make decisions. There are lots of opportunities for the children to evaluate their performances and reflect on how they will improve next time.

PSHE

Substantive Knowledge

Knowledge about the formal elements that make up the PSHE curriculum; the content taught.

Disciplinary Knowledge

Different 'ways of knowing' that enables pupils to understand and use some of the methods and techniques associated with personal, social, health and emotional wellbeing.

RE

Personal Knowledge

All pupils arrive at their starting points in RE furnished with their own personal knowledge and experience acquired through their exposure to family and cultural practices. This personal knowledge is not set in stone and will necessarily develop as their familial and cultural experiences progress. Their personal knowledge will also develop as worldviews are widened by exposure to the RE curriculum at Bleakhouse Primary School. Therefore, all pupils should be given regular opportunities (once per term) to demonstrate and reflect upon the development of their personal knowledge and world view as their learning progresses.

Substantive Knowledge

Substantive Knowledge within the LA SACRE curriculum are:

- General (such as moral stories)
- Christianity
- Islam
- Sikhi
- Hinduism
- Judaism
- Non-religious

Disciplinary Knowledge

There are three key elements to disciplinary knowledge within SACRE are:

- Making sense of beliefs
- Understanding the impact
- Making connections