



Curriculum Learning Guide

Mathematics

**How is Mathematics taught at St Philip's
CE Primary Academy?**

To be read alongside the EYFS Programme of Study for Curious Minds

Curriculum Intent:

What do we want to achieve with our mathematics curriculum?

The aim of our Mathematics curriculum is for the children at St Philip's to have an *appreciation of the importance of mathematics in the wider world* and develop a sense of enjoyment and curiosity about the subject. At St Philip's we want to create active and resilient learners, provide the foundations and the necessary skills and knowledge for them to become successful in their future.

Our intention by using the White Rose Maths curriculum is to provide a high-quality, ambitious, connected Mathematics curriculum which caters for the needs of all individuals and teaches children the ability to reason mathematically. It is our intention for all pupils at St Philip's to become fluent in the fundamentals of Mathematics, to be able to reason and to solve problems and to **nurture** a love of Mathematics. Our curriculum helps children develop transferable skills such as **team-working, leadership, independence, problem-solving, decision-making** and **presentation**. These skills are vital to children's development as learners and have a wider application in their general lives outside and beyond school. At St Philip's we are committed to ensuring that all children recognise the importance of Mathematics in the wider world and that they are able to use their mathematical skills and knowledge **confidently** in their lives in a range of different contexts. We believe that Mathematics is an important creative discipline that helps children understand and change the world. We teach maths to **empower** children to **solve problems** and teach them transferable strategies to enable them to do this.

Throughout their journey of Mathematics at St Philip's, we encourage children to become **independent** in their learning and have the **confidence** to join in with mathematical debate and discussions. This aligns with our biblical links to Matthew 5:16 **'Let your light shine'**.

At St Philip's we foster **positive can-do attitudes** and we promote the fact that **'Mathematics is for everyone!'** We believe all children can achieve in Mathematics and we teach for a secure and deep understanding of mathematical concepts through manageable steps.

Our intention is for the children at St Philip's -

To become **fluent** in the fundamentals of Mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

To **reason** mathematically by following a line of enquiry, conjecturing relationships and generalisations, developing an argument, justification or proof using mathematical language.

To **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems.

To have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately.

To **take risks** in their learning and use different ways to solve problems when something doesn't work the first time.

Children at St Philip's will learn that in our school - Mathematics is the study of number, shapes and patterns and how these are applied in real life situations.

Implementation:

How will this be achieved?

Curriculum Planning: At St Philip's the planning of a progressive curriculum is supported by the use of the White Rose Maths hub planning sequences and a clearly progressive White Rose Maths calculations policy and the Bespoke Programme of Study for Curious Minds.

The children will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways. Mastery in Mathematics means acquiring a deep, long-term, secure and adaptable understanding of the subject. It is demonstrated by how skilfully a child can apply their learning in Mathematics to new situations in unfamiliar contexts.

For example, children will more readily understand how to work with fractions if they have a solid grasp of multiplication and division. Moving between different strands of Mathematics allows children to gain a range of knowledge and skills in different areas that will feed into each other. Having an a ready-planned curriculum allows us the time to further adapt the lessons and schemes of work to best suit the needs of our children.

Why do we use White Rose Maths?

White Rose Maths Curriculum has been designed using research-led pedagogies for the teaching of Mathematics.

The White Rose Curriculum is a high- quality cumulative curriculum so the same topic will be covered in different contexts in order to refresh children's knowledge and ensure that children are constantly building upon their skills and making links between different areas of Mathematics. Children are not expected to become wholly fluent in one area of the curriculum before moving on to another. The strategy for distributing the programmes of study in different sections throughout the year is so that children can use the knowledge gained in other areas of the curriculum to support any other areas they are struggling with.

White Rose Maths supports schools to develop mathematics by providing detailed guidance and a range of resources. Primary Stars resources are used in Key Stage One which follows the White Rose maths curriculum. White Rose also provides resources to help improve subject leadership and action planning for improving teaching and learning in mathematics.

The White Rose Maths curriculum embraces the National Curriculum aims, and provides guidance to help pupils to become:

Visualisers – using the CPA approach to help pupils understand Mathematics and to make connections between different representations.

Describers – placing great emphasis on mathematical language and questioning so pupils can discuss the Mathematics they are doing, and so support them to take ideas further.

Experimenters – as well as being fluent mathematicians, we want pupils to love and learn more about Mathematics.

White Rose Maths offers full coverage of the EYFS educational programme for Reception and the National Curriculum for years one to six. It is written by experts in Mathematics and based on the most up to date research.

Daily AFL task - Diagnostic Questions: In year 3 to 6 we use at least one diagnostic questions as an AFL task at an appropriate point in each lesson. These are quick and carefully selected questions. They are a quick and accurate way of assessing children's knowledge and understanding of a key skill or concept, identifying fundamental misconceptions that they may have.

Spiralling review/ flashback: Spiralling questions are used at the start of some lessons and are used to strengthen retention and develop long-term memory.

Vocabulary Development: In all year groups pupils are introduced to key vocabulary. Widget icons are used to support key vocabulary. Mathematical dictionaries are used by both adults and children in KS2.

Vocabulary assessment: A vocabulary assessment is made at the start of each unit to assess the children's understanding of the vocabulary related to the new unit. Vocabulary will be introduced from Nursery through to year 6. In EYFS and year one widget cards will be used to teach and refer to vocabulary. In KS2 a vocabulary list will be added to the children's mathematics book (to be used as a reference throughout the unit) after the knowledge organiser.

Use of mathematical dictionaries in Key Stage Two: Teachers and children will use their class mathematical dictionaries to support their understanding of mathematical vocabulary. At the start of each unit the dictionaries will be used to create a definition list of the key vocabulary which can be referred to throughout the unit.

Modelling: Children are taught through clear modelling and have the opportunity to develop their knowledge and understanding of Mathematical concepts.

Developing Mastery: The National Curriculum encourages children to develop mastery of Mathematical concepts- with time given to allow and understanding before breadth. At St Philip's this is done by encouraging conceptual understanding through the use of practical equipment and the priority of talk in Mathematics lessons.

Manipulatives and the CPA Approach: The mastery approach incorporates using objects, pictures, words and numbers to help children explore and demonstrate Mathematical ideas, enrich their learning experience and deepen understanding at all levels. Maths manipulatives are available in all classrooms to assist demonstration of securing a conceptual understanding of the different skills appropriate for each year group.

Reasoning and Problem Solving: Reasoning and problem solving are integral to the activities children are given to develop their Mathematical thinking. Children are taught a range of problem solving strategies that they can use to help them solve problem solving and reasoning questions. These include 'Trial and improvement', 'Draw it' and 'Working backwards'. These strategies are displayed on working walls and at the start of each half term children are having a problem solving lesson working on these strategies. Each strategy has a widget symbol to represent it and these make the strategies more memorable to children.

Inclusion: We take a mastery approach to the teaching of Mathematics at St Philip's CE Primary; a key part of this methodology is that all learners engage in all aspects of our curriculum. Where required, lessons and resources may be adapted and scaffolded to ensure that every learner can access every aspect of our wide ranging, challenging and engaging Mathematical offering.

Each maths lesson within our curriculum is prepared with adaptive teaching to ensure that all learners are able to access the learning, build upon their existing knowledge and skills, and challenge their reasoning and problem-solving skills.

SEN and Support: Children with additional needs are included in whole class lessons and teachers provide scaffolding and relevant support as necessary. For those children who are significantly behind their peers, where appropriate individual learning activities are provided to ensure their progress, this includes children with an Educational Health & Care Plan. The targets identified on their EHCP are also included in their support plans. Children who are on the SEND register will have been assessed using the Bradford maths baseline and may be working on the next steps from their individual baseline. Children in KS1 and KS2 with additional needs will have a support plan with next steps for mathematics. (Available from 9th January 2023). These children will have individual widget cards for the key vocabulary being taught, access to appropriate manipulatives and access to a subitising box in their classroom. (from February 2023).

Pre Teach: A small group of no more than seven children access a 'Pre teach' group once a day. This gives them a 'sneaky peak' at the upcoming lesson. In the pre teach lesson there are opportunities to discuss key vocabulary, introduce new vocabulary, go over the key concept that will be taught and work through an example together. As well as a chance to work on similar questions independently or as a group. (Reception to year five) This has proven to reduce maths anxiety and improve maths attainment for children who are below age-related expectations.

Exploring and a Deeper Understanding: Children are encouraged to explore, apply and evaluate their mathematical approach during investigations to develop a deeper understanding when solving different problems / puzzles. This is achieved through the use of WRMH, Numicon and Primary Stars

Fluency: In KS2 children spend additional half an hour per week focusing on arithmetic to build fluency and precision.

Times Tables Rock stars

In years two to six children access 'Times Table Rockstars' both at school and at home to develop times table fluency.

From November 2023 – Children in year one and two will have access to TT ROCKSTARS. (Year one will only access this at home if they wish to)

Children are expected to complete a minimum amount of time per week practicing their times tables on TT ROCKSTARS as homework.

Year 2 – 15 minutes per week

Year 3 - 4 20 minutes per week

Year 5 – 6 25 minutes per week

One Minute Maths and Teach Your Monster Number Skills

EYFS and Key Stage One children are encouraged to use these apps to practice maths at home. Guidance has been sent to parents.

Practical/ Hands on homework

In EYFS and Key Stage One children are given practical mathematics home learning ideas to support their current unit. Ideas are given with suggestions of everyday items that can be found at home or outdoors. For example, scarves, spoons, pasta and leaves.

Number Blocks EYFS Number Blocks episodes are sometimes used as a launchpad in children's introduction to early number.

Maths Stories In EYFS we use maths stories as a hook when teaching mathematics.

From March 2025 – Maths stories are used as a talking point to promote 'maths talk' and to bring concepts to life.

Unit and Lesson Structure:

The White Rose Maths curriculum is designed to build on prior learning as part of a spiral curriculum. Lessons are sequenced from Reception to year six for progression where all learning builds throughout the year groups, concepts are built upon and developed in logical steps with particular attention given to fundamental concepts and vocabulary. This ensures that all children can master concepts before moving to the next stage, with no pupil left behind. All children are taught the same lesson and each lesson offers differentiated activities. In EYFS, through the use of the White Rose Schemes for Nursery and Reception alongside our bespoke Programme of Study for Curious Minds document, Mathematical learning is broken down into sequential steps from entering Nursery to entering year one.

Pupils are taught through whole-class and small group teaching. In addition to these discrete lessons we aim to teach maths in a cross curricular way to practise the practical application of mathematical skills in different contexts both indoors and out.

Knowledge Organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary. (Years one to six. These are currently being created for Reception and will be available from Autumn 2025).

The Knowledge Organisers are introduced to the children at the start of each unit and put into each child's Mathematics book or workbook for the pupils to refer to throughout the unit and beyond.

Mathematics throughout school

Nursery

Maths story – 11:20-11:30 – Monday

Interactive maths lesson – 11:20-11:30

Maths focused activities in provision

Maths in the basic provision and enhanced provision both indoors and outdoors everyday.

Reception

Maths sessions – Monday – Thursday 1:05PM – 1:25PM

Maths Story – Monday PM

Maths focused activities in provision

Maths in the basic provision and enhanced provision both indoors and outdoors everyday

Pre teach – Monday – Thursday PM

Key Stage One

Maths lesson – 11:00 – 12:00

Mathematics in the continuous and enhanced provision within the classroom. (Year One)

Pre Teach daily

Key Stage Two

Maths lesson – 11:00 -12:00

Arithmetic lesson – 30 minutes per week in KS2.

Pre Teach daily

Impact:

The impact of our Mathematics curriculum –

- Each child achieves objectives (expected standard) for their year group.
- Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times tables.
- Children show confidence in that they will achieve well in Mathematics.
- Children have the flexibility and fluidity to move between different contexts and representations of Mathematics.
- Children develop the ability to recognise relationships and make connections in Mathematics lessons.
- Children develop a mastery of Mathematical concepts or skills and can show it in multiple ways, using Mathematical vocabulary to explain their ideas.

Assessment Strategies at St Philip's

Formative Assessment **In EYFS**

On-going practitioner assessment of child initiated Mathematical learning – used to further individuals learning.

Maths activities both adult led and child initiated are recorded in Reception workbooks throughout the year.

Mathematical sparks of interest are recorded on Tapestry and followed up by practitioners.

Mathematical learning is recorded in the 'What Maths Looks Like In EYFS At St Philip's' journal.

Years One to Six

At St Philip's we use formative assessment to determine children's understanding. Feedback is given to the children through marking and next step tasks to ensure they are meeting the specific learning objective.

Vocabulary Check

- At the start of every unit every child in years one to six completes a vocabulary check.
- In Key Stage One the children will say whether they know the word.
- In lower Key Stage Two children will say whether they know the word and then match the word to a definition.
- In Key Stage One and Two the children will check their understanding of the vocabulary at the end of each unit.

In Key Stage Two the children and adults will use mathematical dictionaries to find definitions for key vocabulary.

- Teachers will use the information from the vocabulary check to inform their teaching.

Summative Assessment In EYFS

- Half termly Mathematical assessments of what has been taught in that half terms WRM units 'The Journey' from WRM is used– 'Talk based assessment'.
- Termly Reception tracker to identify if children are of greater concern, concern or no concern in Number and Numerical Patterns.
- SEND provision map targets assessed.

Years One to Six

- Each term children from Year 2 and above use summative assessment to help them to develop their test skills and demonstrate their understanding of the topics covered.
- Year 2 and 6 use previous SATS papers.
- Years 3,4 and 5 use NFER tests.

The results from both the formative assessment and summative assessment are then used to determine children's progress and attainment.

We use POWER BI to support analysis of data after key assessment points and plan interventions and support to ensure aspirational targets are met.

The impact of our Maths curriculum is also measured in SATs results at the end of Years 2 and 6 and in the Multiplication screening in Year 4. We use question Level analysis of SATs papers to identify areas of weakness and strength.

Spiral Curriculum:

The White Rose Mathematics curriculum design follows the spiral curriculum model by Jerome Bruner in which key concepts are presented repeatedly throughout the curriculum, but with deepening layers of complexity.

Throughout the teaching of mathematics, pupils will:

- Return to the key concepts again and again during their time in primary school.
- Deepen their understand with each revisit as key concepts are covered with greater complexity.
- Utilise prior knowledge so they can build upon previous foundations, rather than starting again.

Key Drivers at St Philip's:

Oracy Rich	Relevant Content	Experiential Learning	Future Proof	Inclusive Supportive
<ul style="list-style-type: none"> • Vocabulary check for each unit across school. • Dialogic Talk in Maths -Debate/discussion/negotiation • Giving explanations • Questioning • Role play • Dialogic talk discussions • Reasoning & justifying verbally • Practical lessons 	<ul style="list-style-type: none"> • Whiterose Maths at the forefront of curriculum development. • Delivery of the statutory requirements for KS 1 and 2 as outlined within the National Curriculum for Mathematics • Maths used in other subjects across school. For example, scales on maps Geography. 	<ul style="list-style-type: none"> • Plan a variety of visits. For example visiting a bank or a supermarket. • Plan for visitors whose job uses mathematics to visit school. Enterprise days. • Real problems will be investigated. • Use a variety of real resources to teach. • Pupils are taught through discussion, 	<ul style="list-style-type: none"> • Whiterose maths is continually evolving and at the forefront of mathematical development. • Use of Education Endowment Foundation research. • Real life scenarios. • Plan for visitors whose job uses mathematics to visit school. • Visits planned to use their mathematical 	<ul style="list-style-type: none"> • Multi-sensory approaches • SEND approaches used inc. use of resources and adults. • Manipulatives for every class. • Use of Numicon as a core manipulatives from Nursery to Year Six. • A variety of learning styles is used: visual, audio and kinetic

<ul style="list-style-type: none"> • Learning through play in EYFS <p>Learning through maths stories in EYFS From March 2025 – The use of maths stories from Nursery to Year 6 to encourage ‘Maths Talk’ and to bring concepts to life through story.</p>	<ul style="list-style-type: none"> • Relevant and current mathematical topics. <p>Open ended questions and mathematical investigations.</p>	<p>practical activity, games, investigations, problem solving, research, role-play and recording.</p> <p>Learning through play in EYFS.</p>	<p>skills – visit the supermarket.</p> <ul style="list-style-type: none"> • Preparing pupils for an ever changing world of mathematics. • Use a wide range of ICT to support subject investigations and enquiries. • Informing and empowering children and young people to become confident mathematicians. <p>Local visits to create an investment for the future.</p>	<ul style="list-style-type: none"> • Whole-class teaching methods, enquiry based group work, individual, pair, class and group work. • Assessment of pupils informs the teacher of achievements and gives guidance for future learning. • Open ended Mathematical investigations which can have a variety of responses.
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Mathematics – Pedagogy:

Mastery Approach – The journey to mastery

The White Rose Maths Curriculum is designed to give time to think about a topic and develop understanding and also to realise that mastery will not have been achieved by the end of the unit, whatever its length. The White Rose Maths small step approach is designed to ensure that pupils will come back to topics time and time again, both within the study of the same area of mathematics and in other areas so that they will continue to deepen their understanding through this revisiting and interweaving.

Spiral Curriculum

The White Rose Mathematics curriculum design follows the spiral curriculum model by Jerome Bruner in which key concepts are presented repeatedly throughout the curriculum, but with deepening layers of complexity, or in different scenarios.

CPA Approach

The origins of the CPA approach go back to the teaching methods of the 1960s, when American psychologist Jerome Bruner proposed this approach as a means of scaffolding learning. He believed the abstract nature of learning (which is especially true in maths) to be a 'mystery' to many children. It therefore needs to be scaffolded by the use of effective representations and maths manipulatives. He found that when pupils used the CPA approach as part of their Mathematics education, they were able to build on each stage towards a greater Mathematical understanding of the concepts being learned, which in turn led to information and knowledge being internalised to a greater degree.

Mathematics as a creative discipline

Creativity is at the heart of mathematical practice, with models, images and symbols providing a foundation for solving problems, building empathy and considering others' points of view. The work of Josh Lury looks at approaching maths problems while deepening creativity. Josh Lury works with White Rose maths.

Research from the Education Endowment Foundation

At St Philip's we use the guidance reports which use evidence-based recommendations published by the Education Endowment Foundation to improve our practice.

Diagnostic Questions

Research by Craig Barton says that diagnostic questions can help you identify and understand both mistakes and misconceptions. At St Philip's we select our questions through the diagnostic questions website where the questions have been designed to include a common misconception.

Dialogic Talk

Evidence from Howe et al. (2019) emphasises the importance of allowing pupils to share and explain contrasting opinions and viewpoints. We can promote this through prompting pupils to debate whether key statements are true, false, or sometimes true. We can also provide worked examples to encourage pupils to compare and contrast multiple approaches and strategies. This allows for discussion about the advantages and challenges of different choices, supporting pupils to critically evaluate these, and deepen mathematical understanding which can inform their future actions.

Cross Curriculum

Mathematics is taught discretely from Years one to six in order to develop the knowledge, understanding and skills required to fully meet the objectives of the National Curriculum. These can then be further developed in other subjects in order to enrich and deepen learning.

Maths Stories

Research by Dr Nattharpoj Vincent Trakulphadetkrai suggests that maths stories can be an effective way to reveal mathematical structure. He believes that storybooks have the power to foster children's conceptual understanding of maths and to develop engagement.

Mathematics In Early Years

In Early Years at St Philip's, through our Bespoke Programme of Study for Curious Minds, we have created a curriculum of **small mathematical building blocks** from when children enter our Nursery at three years old to when they enter year one.

We use a range of exciting and age-appropriate provocations to inspire mathematical learning. To ensure maths is **purposeful** and **enjoyable** we have created a **learning environment which is rich in mathematical opportunities.**

Children learn mathematics **both indoors and outdoors**, as well as **in the forest**. Children are supported in their learning through **concrete, pictorial and abstract ways of learning.**

The children in Nursery and Reception follow the White Rose Maths schemes and **provocations** in the learning environment change to reflect the units taught through focused activities and maths meetings.

Our Nursery children begin to develop key skills during **daily maths meetings** where they explore sorting, quantities, shape, number and counting awareness. From September 2024 they will also follow the White Rose Maths long term planning – this will be flexible and will be adapted to suit the needs of the children at St Philips and prepares them for Reception mathematics. They also learn **mathematical rhymes and songs**, listen to **mathematical stories** and these early mathematical experiences are carefully designed to help children remember the content they have been taught and to support them with integrating their new knowledge across the breadth of their experiences and into larger concepts later. The children in Nursery follow a bespoke curriculum

The EYFS Statutory Framework - Educational Programme for Mathematics

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

St Philips's CE Primary Academy – White Rose Mathematics Reception Long Term Plan										
Reception	'Just Like Me'	'It's Me 1,2,3'	'Light and Dark'	'Alive In 5!'	'Growing 6,7 and 8!'	'Building 9 and 10'	'To 20 and Beyond'	'First The Now'	'Find My Pattern'	'Deepening Understanding'
Number	Match and Sort Compare Amounts	Representing 1,2,3 Comparing 1,2,3 Composing 1,2,3	Representing Numbers to 5 One more and one less	Introducing zero. Comparing numbers to 5 Composition of 4 and 5	6,7 and 8 Combining 2 groups Making Pairs	9 and 10 Comparing numbers to 10 Bonds to 10	Building numbers beyond 10 Counting Patterns beyond 10	Adding more Taking away	Doubling, Sharing and Grouping Even and Odd	Deepening understanding Patterns and relationships

Measure, Shape and Spatial Thinking	Compare, Size, Mass and Capacity Exploring Pattern	Circles and Triangles Positional Language	Shapes with 4 sides	Compare Mass (2) Compare Capacity (2)	Length Height Time	3D Shape Pattern	Spatial Reasoning (1) Match, rotate and	Spatial reasoning (2) Compose and	Spatial reasoning (3) Visualise and build	Spatial reasoning (4) Mapping
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Nursery Long
Term Plan from
September 2024

Comparison 1

**More than,
fewer than,
same**

[VIEW](#)

Shape, space and
measure 1

**Explore and
build with
shapes and
objects**

[VIEW](#)

Pattern 1

**Explore
repeats**

[VIEW](#)

Counting 1

**Hear and
say number
names**

[VIEW](#)

Counting 2

**Begin to
order
number
names**

[VIEW](#)

Subitising 1

I see 1, 2, 3

[VIEW](#)

Pattern 2

**Join in with
repeats**

[VIEW](#)

Shape, space and
measure 2

**Explore
position and
space**

[VIEW](#)

Subitising 2

**Show me 1,
2, 3**

[VIEW](#)

Counting 3

**Move and
label 1, 2, 3**

[VIEW](#)

Shape, space and
measure 3

**Explore
position and
routes**

[VIEW](#)

Pattern 3

**Explore
patterns**

[VIEW](#)

Counting 4

**Take and
give 1, 2, 3**

[VIEW](#)

Shape, space and
measure 4

**Match, talk,
push and
pull**

[VIEW](#)

Subitising 3

**Talk about
dots**

[VIEW](#)

Comparison 2

**Compare
and sort
collections**

[VIEW](#)

Pattern 4

**Lead on
own repeats**

[VIEW](#)

Shape, space and
measure 5

**Start to
puzzle**

[VIEW](#)

Pattern 5

**Making
patterns
together**

[VIEW](#)

Subitising 4

**Make games
and actions**

[VIEW](#)

Counting 5

Show me 5

[VIEW](#)

Pattern 6

**My own
pattern**

[VIEW](#)

Counting 6

**Stop at 1, 2,
3, 4, 5**

[VIEW](#)

Comparison 3

**Match, sort,
compare**

[VIEW](#)

Number & Place Value				
Nursery Semester 1	Nursery Semester 2	Reception Semester 1	Reception Semester 2	Year 1 National Curriculum
Learn to listen to stories that involve mathematical problems.	Learn to solve real world mathematical problems with numbers up to five.	Learn to solve real world mathematical problems with numbers up to eight.	Learn to solve real world mathematical problems with numbers up to ten.	Addition and Subtraction: Problem Solving – Solve one step problems that involve addition and subtraction.
Learns to count in everyday context. (Sometimes skipping numbers 1,2,4)	Learn to recite numbers past five. Learn to recognise a number line.	Learn to <i>use</i> a number line to find one more than or one less than.	Learn 'one more than/one less than' relationship between consecutive numbers.	Number: Place Value (within 10) Count one more. Count one less.
Learn about the 'howmany'ness' of numbers below three.	Learn about the 'howmany'ness' of numbers to five. Learn about the composition of numbers two and three.	Learn the composition of numbers one to five.	Learn the composition of numbers to ten.	Number: Addition and subtraction (within 10)
Learn about numbers 0-3.	Learn about number 0-5.	Learns number bonds for 0 -5.	Learn to automatically recall number bonds for numbers 0-5 (subtraction facts) and (some 0-10 for double facts).	Addition and Subtraction: Recall, Represent, Use. Represent and use number bonds.
Learns some counting				

songs that include counting backwards from five. E.g. five little speckled frogs.	Learn to count to five and back to zero.	Learn to count to 10 and back to 0.	Learn to play simple track games by counting on and back.	Place Value: Counting. Counting backwards and forwards.
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Numerical Patterns				
Nursery Semester 1	Nursery Semester 2	Reception Semester 1	Reception Semester 2	Year 1 National Curriculum
Learn to notice changes in amount in a group of up to three objects.	Learns to recognise up to three objects quickly without having to count them individually. (Subitising)	Learn to see small quantities in familiar patterns. For example on a dice.	Learn to see quantities in familiar patterns and more random arrangements.	Place Value: Represent. Identify and represent numbers using objects and pictorial representations.
Learns to count in everyday context. (Sometimes skipping numbers 1,2,4)	Learn to recite numbers past five.	Learn to count beyond ten.	Learn to count verbally beyond twenty.	Place Value: Counting. Count to and across 100, forwards and backwards.
Learn to touch each object as they count. (Sometimes skipping numbers)	Learn to touch each object as they count and say one number for each item in order up to three.	Learn to touch each object as they count and say one number for each item in order up to five.	Learn to touch each object as they count and say one number for each item in order beyond ten.	Place Value: Counting. Count to and across 100

Learn to count in everyday contexts, touching each object as they count. (Sometimes skipping numbers)	Learn that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').	Learn to link the number symbol (numeral) with its cardinal number value for numbers up to five.	Learn to link the number symbol (numeral) with its cardinal number value for numbers up to beyond ten.	Place Value: Represent. Identify and represent numbers.
Learn some finger rhymes with numbers.	Learn to show 'finger numbers' up to five.	Learn to quickly subitise how many fingers up to five.	Learn to represent numbers to ten using fingers. Use their fingers to explore the composition of numbers.	Number: Addition and subtraction (within 10)
Learn to talk about numbers in the environment.	Learn to link numerals and amounts up to five : for example, showing the right number of objects to match the numeral, up to 5. For example recognising five pencils need to be in the pen pot.	Learn to link numerals and amounts up to ten.	Learn to link numerals and amounts beyond ten.	Place Value: Represent

**Fraction
s**

Nursery Semester 1	Nursery Semester 2	Reception Semester1	Reception Semester 2	Year 1 National Curriculum
Learn to recognise when there are two different quantities. For example say who has more.	Learns how to compare two groups saying when they have the same number.	Learns the skills required to demonstrate doubling in familiar contexts and do this in a practical way.	Learns the skills required to demonstrate doubling in familiar contexts.	Fractions: Recognise and write. Recognise, name and write a half or quarter as one of two equal parts of an object shape or quantity.
Learns strategies to share toys with one other person.	Learns strategies to share toys with more than one other person.	Learns the skills required to demonstrate halving in familiar contexts and do this in a practical way.	Learns ways of halving in familiar contexts.	Fractions: Recognise and write. Recognise, name and write a half or quarter as one of two equal parts of an object shape or quantity.

Measurement				
Nursery Semester 1	Nursery Semester 2	Reception Semester 1	Reception Semester 2	Year 1 National Curriculum
Explore different measuring equipment such as tape measures, weighing scales, jugs etc.	Learn to make comparisons between objects relating to size, length, weight and	Learn to describe the comparisons between objects relating to size.	Learn to describe the comparisons between objects relating to length,	Measurement: Using Measures. Capacity and volume/ Mass/ Weight/ Length

	capacity.		weight and capacity.	
Learns to recognise time related events such as home time or lunch time.	Learns about routines. Learns the routines of the nursery day in the correct order using key words.	Learns to talk about the routine of the day and use language like before, after etc.	Learns everyday language to talk about time.	Measurement: Time. Tell the time to the hour and half past the hour. Draw the hands on a clock face to represent the time,
Learns familiar routes around nursery and reception and the outdoor environment at school.	Describe a familiar route.	Learn to explain a familiar route in steps.	Learns directional language to describe a familiar route.	Measurement:
Learn to understand position through actions.	Learn to understand position through words alone.	Learn to explain the position of objects using words.	Learn to explain the position of objects using words to a peer in order for them to find an object.	Measurement:
Learn to speak in sentences.	Learn to recall an event, real or fictional in sentences.	Learn how to describe a recent event/ retell a story to a peer or adult.	Learn to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Measurement: Time. Sequence events in chronological order

Geometry

Nursery Semester 1	Nursery Semester 2	Reception Semester 1	Reception Semester 2	Year One National Curriculu m
<p>Learn to notice shapes in the environment. For example a brick is a rectangle.</p>	<p>Learn how to talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.</p>	<p>Learn how to talk about and describe 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.</p>	<p>Learn to select, rotate and manipulate 2D and 3D shapes in order to develop spatial reasoning skills</p>	<p>Geometry: 2D Shapes/ 3D Shapes. Recognise and name 2D and 3D Shapes.</p>
<p>Learn to notice shapes in the environment. For example a brick is a rectangle.</p>	<p>Learn to combine shapes to make new ones - an arch, a bigger triangle etc.</p>	<p>Learn how to complete a tangram puzzle.</p>	<p>Learn to compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p>	<p>Geometry: 2D Shapes/ 3D Shapes. Recognise and name 2D and 3D Shapes.</p>
<p>Learn to identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.</p>	<p>Learn to identify and talk about the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.</p>	<p>Learn to continue, copy repeating patterns.</p>	<p>Learn to create Their own repeating patterns.</p>	

	<p>Learn to extend and create ABAB patterns – stick, leaf, stick, leaf.</p> <p>Moving on to - Notice and correct an error in a repeating pattern.</p>			
<p>Learn to notice shapes in the environment. For example a brick is a rectangle.</p>	<p>Learn to select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</p>	<p>Learn to talk about the shapes they have selected and explain why they are the most appropriate.</p>	<p>Learn to use mathematical vocabulary to describe why shapes are most appropriate.</p>	<p>Geometry: 2D Shapes/ 3D Shapes. Recognise and name 2D and 3D Shapes.</p>

The National Curriculum

Pupils should be taught to:

The principal focus of Mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1

Year One

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value (within 10) VIEW					Number Addition and subtraction (within 10) VIEW					Geometry Shape VIEW	Consolidation
Spring term	Number Place value (within 20) VIEW	Number Addition and subtraction (within 20) VIEW			Number Place value (within 50) VIEW	Measurement Length and height VIEW	Measurement Mass and volume VIEW					
Summer term	Number Multiplication and division VIEW	Number Fractions VIEW	Geometry Position and direction VIEW	Number Place value (within 100) VIEW	Measurement Money VIEW	Measurement Time VIEW			Consolidation			

Year Two

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW				Number Addition and subtraction VIEW				Geometry Shape VIEW			
Spring term	Measurement Money VIEW		Number Multiplication and division VIEW				Measurement Length and height VIEW		Measurement Mass, capacity and temperature VIEW			
Summer term	Number Fractions VIEW			Measurement Time VIEW		Statistics VIEW		Geometry Position and direction VIEW		Consolidation		

Mathematics In Lower Key Stage Two

The National Curriculum

The National Curriculum (2014) states that:

The principal focus of Mathematics teaching in Lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Year Three

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW		Number Addition and subtraction VIEW				Number Multiplication and division VIEW					
Spring term	Number Multiplication and division VIEW		Measurement Length and perimeter VIEW		Number Fractions VIEW		Measurement Mass and capacity VIEW					
Summer term	Number Fractions VIEW	Measurement Money VIEW	Measurement Time VIEW		Geometry Shape VIEW	Statistics Statistics VIEW		Consolidation				

Year Four

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW			Number Addition and subtraction VIEW			Measurement Area VIEW	Number Multiplication and division VIEW			Consolidation	
Spring term	Number Multiplication and division VIEW		Measurement Length and perimeter VIEW	Number Fractions VIEW			Number Decimals VIEW					
Summer term	Number Decimals VIEW	Measurement Money VIEW	Measurement Time VIEW	Consolidation	Geometry Shape VIEW	Statistics VIEW	Geometry Position and direction VIEW					

Mathematics In Upper Key Stage Two

The National Curriculum

The National Curriculum (2014) states that:

The principal focus of Mathematics teaching in Upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems.

Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Year Five

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW			Number Addition and subtraction VIEW		Number Multiplication and division VIEW		Number Fractions A VIEW				
Spring term	Number Multiplication and division VIEW			Number Fractions B VIEW		Number Decimals and percentages VIEW		Measurement Perimeter and area VIEW		Statistics VIEW		
Summer term	Geometry Shape VIEW			Geometry Position and direction VIEW		Number Decimals VIEW		Number Negative numbers VIEW	Measurement Converting units VIEW		Measurement Volume VIEW	

Year Six

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW	Number Addition, subtraction, multiplication and division VIEW					Number Fractions A VIEW	Number Fractions B VIEW	Measurement Converting units VIEW			
Spring term	Number Ratio VIEW	Number Algebra VIEW	Number Decimals VIEW	Number Fractions decimals and percentages VIEW	Measurement Area, perimeter and volume VIEW	Statistics VIEW						
Summer term	Geometry Shape VIEW	Geometry Position and direction VIEW	Themed projects, consolidation and problem solving									

Monitoring and Evaluation

In all subjects at St Philip's CE Primary Academy, the teaching and learning will be monitored and evaluated by both individual Subject Leaders and members of the Senior Leadership Team.

As a Subject Leader, the following activities will be undertaken and used to inform understanding of the subject. Evidence and information from these activities will then be used to inform each subject Plan of Action and the CPD needs of all staff and individuals.

<p>AUTUMN 1</p> <p>Audit Subject Create Action Plan</p> <p>Pupil Surveys</p>	<p>SPRING 1</p> <p>Lesson Observations</p> <p>Website Update</p> <p>Review Assessment Analysis</p> <p>Review Action Plans</p>	<p>SUMMER 1</p> <p>Planning Scrutiny Book/Work Scrutiny</p>
<p>AUTUMN 2</p> <p>Planning Scrutiny Book/Work Scrutiny</p> <p>Triangulation of M&E</p> <p>Identify CPD Requirements</p>	<p>SPRING 2</p> <p>Review Action Plan</p>	<p>SUMMER 2</p> <p>Pupil Surveys Triangulation of M&E Review Action Plan</p>

In supporting individuals, it is expected that Subject Leaders will follow the programme of support below to give all staff the opportunity to gain the knowledge and understanding to deliver the curriculum to the best of their ability:

- Ensure the member of staff has a good understanding of the subject and units to be delivered, using the subject documentation, Medium Term Plans, individual lesson plans and Knowledge Organisers.
- CPD given to individuals through face to face training, webinars, one-to-one support in planning and preparing etc.

- Modelling expectations through demonstration lessons in own or colleague's class.
- Further coaching and discussion of how to implement strategies or modify lessons for the needs of pupils etc.