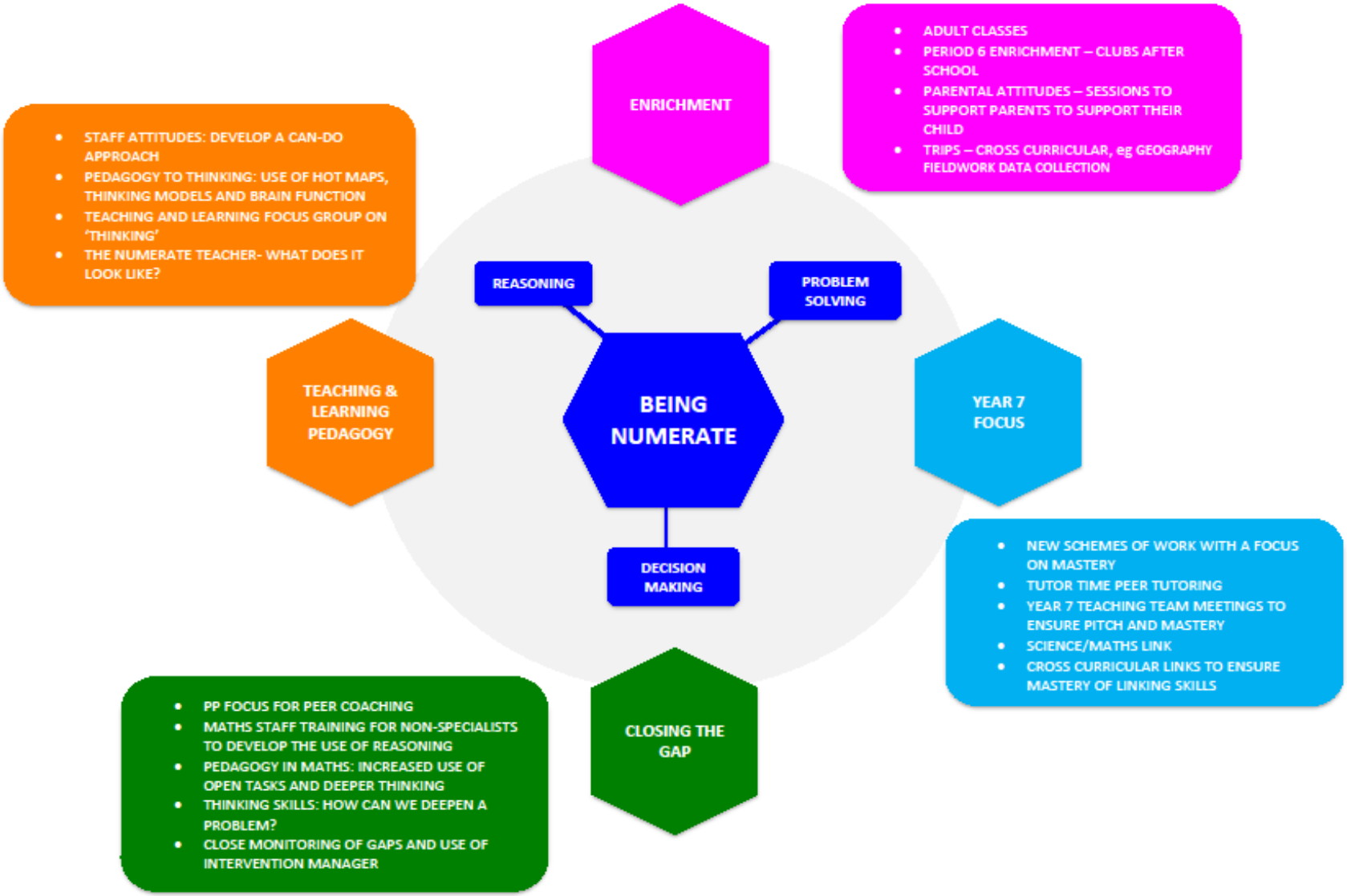
NUMERACY FRAMEWORK



TEACHING AND LEARNING

Vision: To develop resilient and independent learners through logical thinking and problem solving

Yellow = catch up funding

Intervention Strand	Strategy Overview	Hattie/Sutton Trust links	Effect Size	Specifics	How?	Impact	Cost	Led by	Review 1	Review 2	Review 3	Notes
Numeracy-Whole School *By numeracy, we mean the capacity to use and understand maths in ways that meet the needs of everyday life*	Research into current practice both nationally and internationally			Identify what is effective and use this to develop school specific model. NPE to attend CPD	NPE to read and share mathematical mindsets and use Links to mastery curriculum and current practice elsewhere Hattie- Visible learning, National Numeracy Strategy, China and Finland PISA success, Carol Dweck - Growth Mindset, Pam Hook - SOLO Taxonomy	Bespoke numeracy strategy to support our learners Rationale of research supporting planned strategies	TBC	NPE				
	Evaluate current practice within the school			SWOT analysis of current provision from both student and staff perspectives	NPE to undertake this and share, ask staff to contribute via a google doc form Students to contribute through Numeracy Reflection Time activity	Buy in from key stakeholders Maintain current good practice	£0	NPE				
	Numeracy across the curriculum			Staff training on what numeracy across the curriculum will look like at Cowplain Linking the skills of mathematics to other subjects - see why is mathematics so important	PL session on 6th October to introduce key concepts Dept during PL Session to complete an audit to identify the key areas of numeracy used within their subject - this displayed within subject areas PL session to share the plan for future and the impact that collaborative thinking can have in all subject areas SIG Group work on 'thinking' and identifying the barriers (and how to break them down) to thinking at Cowplain	Awareness of the rationale - explanation of metacognition Implementation of key thinking skills in lessons Greater independence and resilience from learners Use of success criteria in lessons and increased meta-cognition activities in lessons	£0					
	Sharing simple mathematical resources			Suitable mathematical resources that could be used in any subject area to be shared	Email a Numeracy bulletin every half term with some kev ideas and kev reminders Email problem solving type resources that will allow different subjects to develop thinking and reasoning within their subject areas Venn Diagrams, Tension Graphs, use of tarsia to create simple activites from resources already available	Consistency aross the curriculum in terms of activities that can build learners' resilience and indepoendence	200 (100)					
	Thinking Group			Teaching and learning focus group on developing thinking models and creating models of thinking and structures to support students across the school with new mastery style curriculum	Focus on use of SOLO Hot maps as a starting point Develop into models for encouraging thinnking and how staff can plan for mastery and reasoning. Use this group to expand good practice out to the school	Consistency aross the curriculum in terms of activities that can build learners' resilience and independence	£300 for resources					
	Links to Literacy			Structuring thinking links to all areas of school life and life in general including structuring paragraphs, sentences and even spellings and pupil talk	Meet with RCS to identify key components of action plans that map across - eg adult learning and how to market this Literacy can take active role in developing reasoning and thinking skills through planning a structure for a response Use Literacy and Numeracy Strategy to entwine key skills based around metacognition	Consistency of approach across two major strands of school impact Work with RCL to embed the links between key strands						Use Literacy and Numeracy Strategy to entwine key skills based around metacognition
	Attitudes			Whole school Can do attitude - *see section on attitudes below*		Change perceptions from 'can't' and 'won't' to **'can't YET'** Whole school approach to thinking where no-one is left behind Maths is something that is everywhere and we can all do it - staff attitudes priority 1.						
Attitudes to Numeracy *"...the numeracy challenge is unique in that it requires a fundamental change in attitude."*	Positive attitude towards maths	Growth Mindset		Staff and learners to be encouraged to never say "Can't do" but rather say "Can't do yet" Maths in life posters relevant to each subject area within classrooms - Awaiting return of Sam Groom	PL session on 6th October to introduce key concepts	Collective approach to developing resilience to complex problems No escape form the use of mathematics and mathematical thinking in everyday tasks and in all lessons across the curriculum	£100					
	Be willing to solve problems involving number, data or measurement			Simple classroom strategies to include some number work in all lessons	Email a numeracy bulletin every half term with some kev ideas and kev reminders Scrabble key words, measuring a length, battleships, venn diagrams 30 second starters/Do now activities in maths - unsign multiple skills	Learners practising key skills in all areas of their learning Confidence to attack problems without instantly reaching for a calculator	£0					
	Persevere and try different approaches; don't give up			Develop and understanding of different approaches to thinking and to calculations Develop a culture of learning from mistakes Be prepared to get things wrong and use this to learn - FAIL (First Attempt In Learning)	Email problem solving type resources that will allow different subjects to develop thinking and reasoning within their subject areas SOLO hot maps Mastery Model poster to be created and shared with students in all subjects Develop KS3 resilience and mastery of skills and a passion for mathematics enjoyment	Move from structured models to approaching problems without requiring a structure - long answer questions @GCSE with confidence Resilience developed and learners develop confidence in attacking more complex problems	£0					
	Develop self confidence			Plan how to approach a task Consistency of approach of how to calculate/represent data Walking talking Mocks Culture of being prepared to try and fail (and learn from) rather than not try at all	Mastery Model poster to be created and shared with students in all subjects Walking talking Mocks - training of other subject areas about how to complete this Success criteria linked to lesson - Hattie	Use of prior knowledge and linking prior knowledge - mastery of key skills Develop an understanding of the hidden marks in exams Understanding what success looks like	£0					
	Become confident with numbers			Consistency of approach of how to calculate/represent data	Joint topic teaching between key subejct areas - geography and maths, science and maths, MFL and maths using numbers	Same methods in all subject areas for key skills such as graph drawing, adding and rearranging	£100 for practical resources that can be shared	NPE/ HODs/ Sam Groom				
	The numerate Teacher			Develop a programme to ensure that all teachers are numerate Support teacher with the delivery of content in their subject areas - workshops and pre arranged meetings with departments Develop a range of cross curricular posters for numerical methods	Meet with all HoD's to address the needs of the new GCSE and identify key crossover areas and develop a consistent approach for all subjects and use of language Teachers/LSA numeracy sessions ot run after school as drop-ins for thise who feel they could benefit	Greater confidence of staff to deliver increased level of numeracy content Students suported by more numerate staff More cross curricular teaching to allow students to make stronger links between subject areas	£200	NPE/ HODs/ Sam Groom				

CLOSING THE GAP

Vision: To develop resilient and independent learners through logical thinking and problem solving

Yellow = catch up fund

Intervention Strand	Strategy Overview	Hattie/Sutton Trust links	Effect Size	Specifics	How?	Impact	Cost	Led by	Review 1	Review 2	Review 3	Notes
Closing the Gap *The national gap of adults with adequate numeracy is opening at an alarming rate*	Intervention Programme			Interventions targeted at those pupils below L4b on entry - peer led to develop confidence in older students	Y11 to lead work with Y7 as coaches. Focus on PP coaches to develop their understanding whilst supporting others LSA to oversee once established Clear success criteria and run using a mastery approach of not moving on until mastered	Develop confidence in use four operations and key areas of mathematics - improved progress and confidence Improve the ability to use basic skills Older pupils take on leadership roles and can develop own skills at same time	£300 copying and resources	NPE/LSAs				
	Pedagogy in maths			Increased use of open tasks to deepen thinking. Teaching and learning to be core part of dept meetings and time spent on specific topic teaching. Model lesson plan template and example lessons created as a dept (initially by NPE)	Bank of example lessons following school format to match precise learning and to ensure an increased level of challenge and expectation through types of problems being used rather than pure repetition Develop reasoning through the style of teaching and work with the dept to understand the effect that this can have on learning and progress *Monitor through learning walks/SOFs and dept reviews*	Create more resilience in pupils for new GCSE syllabus Deeper problems that allow pupils thinking time	£100	NPE/ADC				
	Guided learning			Develop the use of guided learning in class to allow those requiring support the teacher input they require and also time to create the stretch and mastery required for success		Independent thinkers who are capable of working on their own Skill set develop for students to approach open tasks	£0	NPE/EZO				
	Tutor Time programme/Flip Learning			A programme to be developed that encourages pupils to learn key facts through repetition in tutor time and progress shown through tests on Monday and Friday	Requires consistency of approach and time for NPE to monitor the effectiveness throughout the year. SOFs to be completed and greater level of accountability to be created for tutors	All students aware of key facts and language required for GCSE Reduce reliance on the formula sheet that will disappear within GCSE 9-1	£300 copying and resources	NPE/ Tutors/ HoUS/ HoLS				
	Attitudes			Whole school Can do attitude - *see section on attitudes*	It is no longer acceptable at Cowplain to say "I can't do maths!"	Change perceptions from 'can't' and 'won't' to **'can't YET'** Whole school approach to thinking where no-one is left behind Maths is something that is everywhere and we can all do it - staff attitudes priority 1		NPE				
	Links to Literacy			Structuring thinking links to all areas of school life and life in general including structuring paragraphs, sentences and even spellings and pupil talk	Use literacy and numeracy strategy to entwine key skills based around metacognition	Consistency of approach across two major strands of school impact Work with RCL to embed the links between key strands		NPE/RCL				
	Develop a library of open tasks			Develop a library of open tasks and mastery problems that allow teachers a greater ease of use of this type of problem in lessons	In process of being produced and cut up - Tarsia Resources Greater use of problem solving in lessons using accesible online resources NPE to share mastery problems regularly and share ideas on their use	Create more resilience in pupils for new GCSE syllabus Deeper problems that allow pupils thinking time	TBC	NPE/ Admin hub				

YEAR 7 FOCUS

Vision: To develop resilient and independent learners through logical thinking and problem solving

Yellow = catch up fund

Intervention Strand	Strategy Overview	Hattie/Sutton Trust links	Effect Size	Specifics	How?	Impact	Cost	Led by	Review 1	Review 2	Review 3	Notes
Year 7 Focus *By numeracy, we mean the capacity to use and understand maths in ways that meet the needs of everyday life*	Intervention Programme			Interventions targeted at those pupils below L4b on entry - peer led to develop confidence in older students and support younger	Y11 to lead work with Y7 as coaches	Develop confidence in use of four operations and key areas of mathematics - improved progress and confidence Improve the ability to use basic skills Older pupils take on leadership roles and can develop own skills at same time	£4000 (staffing and resources)	NPE				
	Maths Curriculum - focus on mastery			Supporting the basic skills through maths curriculum time. New curriculum created to build on primary learning and incorporate the First 40 approach and increased level of challenge	Key skills reviewed regularly during curriculum time allowing learners opportunities to develop own preferred methods Greater use of trips to see how maths is used	Mastery of key skills Ability to use 'basic skills' with confidence when problem solving Greater engagement in learning	£300	NPE				
	Primary links			Workshops to take place in summer term for those expected to achieve under 4b at KS2	Four operations - targeting solid Level 4 equivalence prior to commencing at CSS. Completed via a 'fun' medium	Increased rates of progress at KS3 Awareness of student needs prior to September start	£200	NPE/HoLS/ ADC				
	Science/Maths link			Students in set 3 on both sides of the year to be taught by SFD for both science and maths to ensure maths through context and consistency for key vulnerable pupils	Not feasible this year but something to plan for during following academic year	Consistent approach and flexibility to match curriculums All low level Y7 students are given the same diet Increased rates of progress at KS3	TBC	NPE/SFD				NPE to regularly meet with SFD to monitor current sitation and help to adapt as necessary
	Year 7 Teaching Team Meetings			All teachers of Y7 to meet and discuss current progress and strategies used and the use of open tasks to develop problem solving and thinking skills	Timetabled slot for Y7 teachers to meet and discuss current work and ensure consistency NPE to share good practice on the teaching of Y7 lessons and resources used to develop reasoning and ensure mastery building on prior knowledge from Y6	Ensure staff consistency of pitch and mastery especially if team contains non-specialists Improved teaching and learning and teacher pedagogy Increased rates of progress at KS3	£300 (resources)	NPE/Y7 teachers				
	Links to Literacy			Structuring thinking links to all areas of school life and life in general including structuring paragraphs, sentences and even spellings and pupil talk	Use Literacy and Numeracy strategy to entwine key skills based around metacognition	Consistency of approach across two major strands of school impact Work with RCL to embed the links between key strands		NPE/RCL				
	Attitudes			Whole School Can do attitude - *see section on attitudes*	It is no longer acceptable at Cowplain to say "I can't do maths!"	Change perceptions from 'can't' and 'won't' to **'can't YET'** Whole school approach to thinking where no-one is left behind Maths is something that is everywhere and we can all do it - staff attitudes priority 1		NPE				

ENRICHMENT

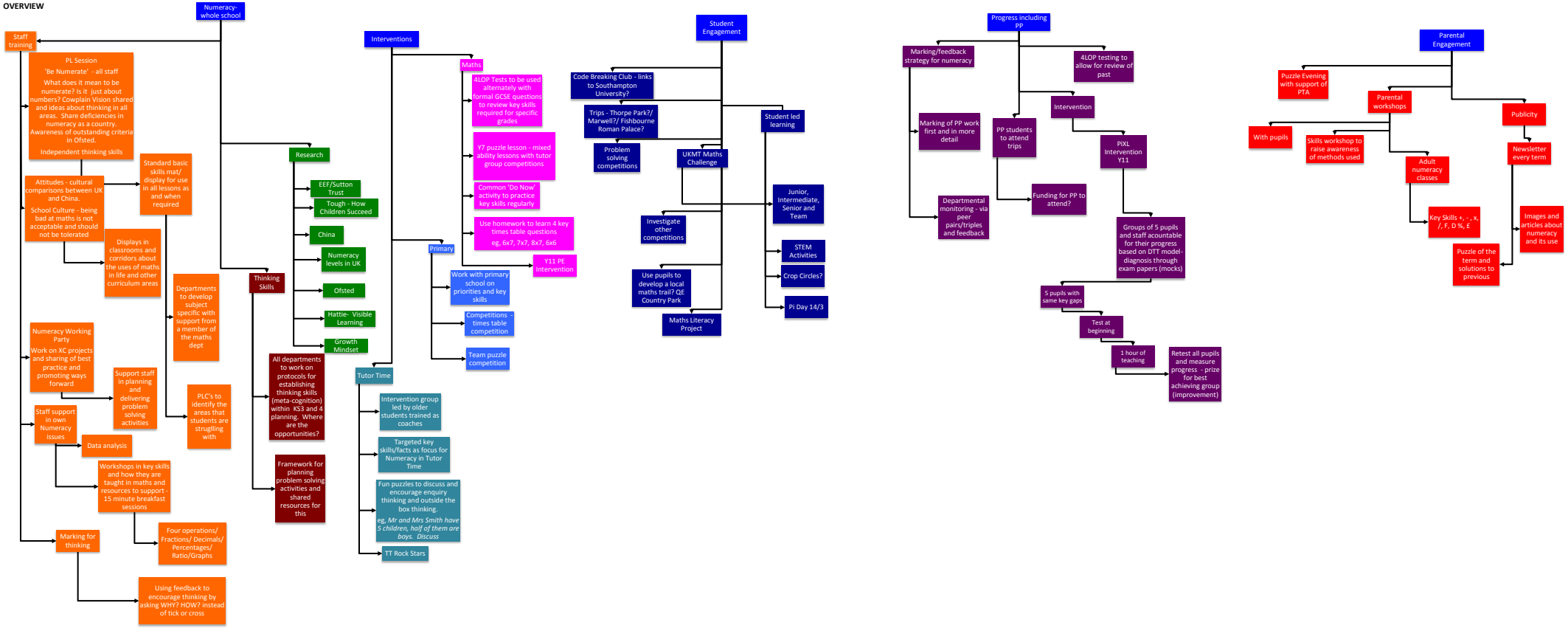
Vision: To develop resilient and independent learners through logical thinking and problem solving

Intervention Strand	Strategy Overview	Hattie/Sutton Trust links	Effect Size	Specifics	How?	Impact	Cost	Led by	Review 1	Review 2	Review 3	Notes
Enrichment *Numeracy in the real world is a gap that must be closed. Attitudes come from somewhere....*	Adult numeracy classes			Develop the levels of numeracy in the local area and support those adults in the community who may be finding a lack of numerical understanding a problem	Letter out to the commnity to get an idea of the uptake and need for this. Can we run on site?	Changes attitudes towards numeracy Improved links with the community	£30 per hour for a tutor	NPE?				
	Period 6 enrichment			Clubs aimed at developed thinking and supporting those who lack confidence in their work and may struggle to find suport at home to assist them	Ideas: Southampton Uni Cipher challenge run by TWN - time been absorbed for Y11 P6 Maths club run by ABT - time absorbed for Y11 P6	Enrichment through thinking	TBC	TWN				
	Parental attitudes			Invite parents/guardians into school to work with their children in a non-threatening environment but also to develop an understanding of the methods used in school		Create a greater uptake for the adult numeracy classes Improved links with the community	£100	NPE/HoLS/ ADC				Has this been tried before? What was the uptake like?
	Trips			Develop a range of trips for students to develop their thinking and their numeracy. Work with other subjects areas to create an ethos of cross-curricular work, eg geography field trip - maths to link in order to analyse the data generated	Already discussed with some subject areas through the mastery curriculum planning Work with all curriculum areas to develop cross curricular links Maths/Science work together to look at teaching of trigonometry	Consistency across the curriculum Support for less confident staff Impact of numeracy in life is heightened and create greater emphasis on relevant skills	TBC	NPE/HODs				
	Attitudes			Whole school Can do attitude - *see section on attitudes*	It is no longer acceptable at Cowplain to say "I cant do maths!"	Change perceptions from 'can't' and 'won't' to **'can't YET'** Whole school approach to thinking where no-one is left behind Maths is something that is everywhere and we can all do it - staff attitudes priority 1		NPE				

SWOT

Strengths	Weaknesses
Staff/SLT support Planning - not about numbers but about thinking Links to SDP Links to ATL Links into greater structure of Teaching and Learning Departments prepared to work together	Attitudes towards maths -nationally PP Gap Another new idea Staff numeracy levels
Opportunities	**Threats**
Close PP Gap SIG 'Thinking' Working party Develop independent learners Value of maths Links to literacy Primary links Growth Mindset Links to work on metacognition Culture of learning - FAIL is a positve Develop mastery Links to mastery	Parental attitudes Culture Staff support - delivery Time in curriculum to change thinking Student buy-in Consistency Fixed Mindset

OVERVIEW


Numeracy- whole school
Staff training
PL Session
'Be Numerate' - all staff
What does it mean to be numerate? Is it just about numbers? Cowplain Vision shared and ideas about thinking in all areas. Share deficiencies in numeracy as a country. Awareness of outstanding criteria in Ofsted.
Independent thinking skills
Attitudes - cultural comparisons between UK and China.
School Culture - being bad at maths is not acceptable and should not be tolerated
Standard basic skills mat/ display for use in all lessons as and when required
Displays in classrooms and corridors about the uses of maths in life and other curriculum areas
Departments to develop subject specific with support from a member of the maths dept
Numeracy Working Party
Work on XC projects and sharing of best practice and promoting ways forward
Support staff in planning and delivering problem solving activities
PLC's to identify the areas that students are struggling with
Staff support in own Numeracy issues
Data analysis
Workshops in key skills and how they are taught in maths and resources to support - 15 minute breakfast sessions
Four operations/ Fractions/ Decimals/ Percentages/ Ratio/Graphs
Marking for thinking
Using feedback to encourage thinking by asking WHY? HOW? instead of tick or cross
Thinking Skills
All departments to work on protocols for establishing thinking skills (meta-cognition) within KS3 and 4 planning. Where are the opportunities?
Framework for planning problem solving activities and shared resources for this
Research
EEF/Sutton Trust
Tough - How Children Succeed
China
Numeracy levels in UK
Ofsted
Hattie- Visible Learning
Growth Mindset
Interventions
Tutor Time
Intervention group led by older students trained as coaches
Targeted key skills/facts as focus for Numeracy in Tutor Time
Fun puzzles to discuss and encourage enquiry thinking and outside the box thinking.
eg, Mr and Mrs Smith have 5 children, half of them are boys. Discuss
TT Rock Stars
Primary
Work with primary school on priorities and key skills
Competitions - times table competition
Team puzzle competition
Maths
4LOP Tests to be used alternately with formal GCSE questions to review key skills required for specific grades
Y7 puzzle lesson - mixed ability lessons with tutor group competitions
Common 'Do Now' activity to practice key skills regularly
Use homework to learn 4 key times table questions
eg, 6x7, 7x7, 8x7, 6x6
Y11 PE intervention
Student Engagement
Code Breaking Club - links to Southampton University?
Trips - Thorpe Park?/ Marwell?/ Fishbourne Roman Palace?
Problem solving competitions
UKMT Maths Challenge
Investigate other competitions
Use pupils to develop a local maths trail? QE Country Park
Maths Literacy Project
Student led learning
Junior, Intermediate, Senior and Team
STEM Activities
Crop Circles?
Pi Day 14/3
Progress including pp
Marking/feedback strategy for numeracy
4LOP testing to allow for review of past
Marking of PP work first and in more detail
Intervention
PP students to attend trips
PIXL Intervention Y11
Departmental monitoring - via peer pairs/triples and feedback
Funding for PP to attend?
Groups of 5 pupils and staff acountable for their progress based on DTT model- diagnosis through exam papers (mocks)
5 pupils with same key gaps
Test at beginning
1 hour of teaching
Retest all pupils and measure progress - prize for best achieving group (improvement)
Parental Engagement
Puzzle Evening with support of PTA
Parental workshops
Publicity
With pupils
Skills workshop to raise awareness of methods used
Adult numeracy classes
Newsletter every term
Key Skills +, - , x, /, F, D %, £
Images and articles about numeracy and its use
Puzzle of the term and solutions to previous