Learning Plan 2	Subject/Pwnc: Mathemateg	Year/Blwyddyn: 9

The Four Purposes in Maths and Numeracy:

Ambitious, capable learners who:
set themselves high standards; seek and enjoy challenge; are increasingly knowledgeable and skilful; are questioning; enjoy solving problems; can communicate effectively; can explain the ideas and concepts; can use number effectively; understand how to interpret data and apply mathematical concepts

Enterprising, creative contributors who:
connect and apply their knowledge and skills to create ideas; think creatively to reframe and solve problems; identify and grasp opportunities; take measured risks

Ethical, informed citizens

Healthy, confident individuals who:
face and overcome challenge; have the skills and knowledge to manage everyday life

Knowledge focus/what matters:

Multiplying and dividing with algebra:
Algebra *uses symbol systems to express the structure of mathematical relationships.*

Time zones, bearings and compound measures:
Geometry *focuses on relationships involving shape, space and position, and measurement focuses on quantifying phenomena in the physical world.*

Learning objective/key question	What will I know and be able to do? I can…	How will I develop my skills? (Success Criteria)	Homework/Gwaith cartref to support progress	
Weeks 1-2: Multiply and divide with algebra (continued from LP1)	• **Expand two linear expressions in one or two variables.** • **Expand two expressions in one variable, where one is linear and the other is quadratic.** • **Factorise linear or quadratic expressions that have at least one common factor.** • **Change the subject of a formula when the subject appears in one term.**	**Understanding:** I can compare different mathematical approaches and explain why one might be better; I can create new ways to represent ideas and test them; I reflect on how my thinking changes and improves over time. **Communicating and skills:** I understand the rules for using different symbols correctly and can adapt language for different audiences; I can produce clear formal write-ups and proofs. **Fluency:** I have built a strong memory for maths techniques so I don't need to keep relearning them; I can solve multi-step problems efficiently and choose optimal methods. **Logical Reasoning:** I can give reasons for my answers and explain my thinking clearly; I can justify my solutions using examples, diagrams, or symbols. **Problem-solving:** I can adapt strategies flexibly and reflect on what worked.	Wk 1-2	Mathswatch homework Set: Due:
Week 3: How are time zones useful?	• Recall and use notation for 12- and 24-hour clock • Recall the number of hours in a day, minutes in an hour and seconds in a minute, and use these facts to convert between units of time. • **Carry out calculations involving different time zones.**	**Understanding:** I can compare different mathematical approaches and explain why one might be better; I can create new ways to represent ideas and test them; I can connect maths to wider learning and real-world challenges. **Fluency:** I have built a strong memory for maths techniques so I don't need to keep relearning them; I can solve multi-step problems efficiently and choose optimal methods. **Logical Reasoning:** I can give reasons for my answers and explain my thinking clearly; I can justify my solutions using examples, diagrams, or symbols; I can identify assumptions in a line of reasoning and suggest simple counterexamples. **Problem-solving:** I can choose the right maths tools or methods to solve a problem; I can adapt strategies flexibly and reflect on what worked; I can plan a multi-step approach to a non-routine problem and monitor progress.	Wk 3-4	Mathswatch homework Set: Due:

Week 4:
 	
Assessment and consolidation
	• Apply knowledge of expressions, equations, indices and time to demonstrate:
	  ○ conceptual understanding
	  ○ mathematical communication skills
	  ○ mathematical fluency
	  ○ logical reasoning skills
	  ○ problem-solving skills
	• Understand and respond to teacher feedback
	• Self-reflect on my learning and progress; identify areas for improvement, set goals and take steps towards reaching these.
		Understanding: I can explain and justify mathematical thinking with clarity; I can compare different mathematical approaches and explain why one might be better.
		Communicating and skills: I understand the rules for using different symbols correctly and can adapt language for different audiences; I can produce clear formal write-ups and proofs.
		Fluency: I have built a strong memory for maths techniques so I don't need to keep relearning them; I can solve multi-step problems efficiently and choose optimal methods.
		Logical Reasoning: I can justify my solutions using examples, diagrams, or symbols; I can identify assumptions in a line of reasoning and suggest simple counterexamples.
		Problem-solving: I can choose the right maths tools or methods to solve a problem.		

Week 5: Use and interpret maps and bearings	• Use and interpret maps. • Interpret scale drawings; scales may be written in the form 1 cm represents 5 m, or 1:500. • Accurately draw and measure angles using a protractor. • **Understand 3-figure bearings and use this knowledge to interpret and draw bearings.**	**Understanding:** I can create new ways to represent ideas and test them; I can connect maths to wider learning and real-world challenges. **Fluency:** I have built a strong memory for maths techniques so I don't need to keep relearning them. **Problem-solving:** I can give reasons for my answers and explain my thinking clearly. I can choose the right maths tools or methods to solve a problem; I can adapt strategies flexibly and reflect on what worked; I can plan a multi-step approach to a non-routine problem and monitor progress.	Wk 5-6	Mathswatch homework Set: Due:
Week 6-7: What are compound measures for?	• Draw and interpret travel graphs and other graphs that describe real-life situations. • Make sensible estimates of metric measurements in everyday situations, recognising the appropriateness of units in different contexts. • Recall and use compound measures for speed and fuel consumption. • Recall and use compound units, including: m/s, km/h, mph and mpg. • **Recall and use other compound measures, including density, population density and flow rates.** • **Recall and use compound units, including kg/m3 , g/cm3 , population per km2 , m3 per hour, litres per second**	**Understanding:** I can create new ways to represent ideas and test them; I can connect maths to wider learning and real-world challenges. **Communicating and skills:** I can use graphing software to investigate compound measures and related graphs. **Fluency:** I can select and use mental methods, written methods and a calculator appropriately to increase speed and accuracy. **Logical Reasoning:** I can give reasons for my answers and explain my thinking clearly; I can identify assumptions in a line of reasoning and suggest simple counterexamples. **Problem-solving:** I can choose the right maths tools or methods to solve a problem; I can plan a multi-step approach to a non-routine problem and monitor progress.	Wk 7	Mathswatch homework Set: Due: