

2023 – Year 8 STEM Scope & Sequence

Subject:

STEM

Faculty: Science & Mathematics

Content Focus: If Outcomes: MA4 Science Subject S Work collab Increase skill Collect data Make observe analysing da Mathematics Sull operating wire solving finar When descriterminology, Formulate ar	Specific Skills: oratively to conduct ls in performing firs from firsthand inver- vations and measure ta and information bject Specific Skills th percentages; find incial problems involution, representing, a tables, diagrams, g and solve problems w	ial Mathematics & MA4-1WM, MA4-2 a range of investigation stigation with accuments accurately, unstigation with accuments accurately, unstigation purchasing go and explaining matraphs, symbols, nowhen using mathem	Earth and Space 2WM & SC4-13ES (Egations safely ns assembling and usin racy appropriate to the using appropriate units amounts cods hematical situations, c tation and conventions	oncepts, methods and so	nt, following a planne	ising appropriate mathe		Project 2 comm	nences
Outcomes: MA4 Science Subject S Work collab Increase skil Collect data Make observe analysing da Mathematics Sule operating wie solving finar When descriterminology. Formulate ar	Specific Skills: oratively to conduct ls in performing firs from firsthand inver- vations and measure ta and information bject Specific Skills th percentages; find ncial problems invol bing, representing, a tables, diagrams, g and solve problems w	MA4-1WM, MA4-2 a range of investig sthand investigation stigation with accur ments accurately, u s: ing percentages of lying purchasing go and explaining mat raphs, symbols, now when using mathem	2WM & SC4-13ES (Egations safely and using assembling and using racy appropriate to the using appropriate units amounts cods thematical situations, cotation and conventions satics to represent unfa	ng appropriate equipmer task for physical quantities oncepts, methods and so miliar or meaningful sit	nt, following a planne	ising appropriate mathe			
Build a stron	ng foundation that ently in choosing appro	nables students to a	dapt and transfer math		efficiently, and appro	priately, and recalling f	actual knowledge		
Numeracy: Quan	specific terminolog ntifying numbers, ad on, communication		• •	s, operating with decima	als, operating with per	centages, understandin	g money		
						Modelling Task			

Content Focus: Rates and Ratios, Indices, Properties of Geometrical Figures, & The Chemical World Outcomes: MA4-7NA, MA4-9NA, MA4-17MG, MA4-1WM, MA4-2WM & SC4-17CW (CW2, CW3, CW4), SC4-5WS, SC4-6WS, SC4-7WS

Science Subject Specific Skills:

- Work collaboratively to conduct a range of investigations safely
- Increase skills in performing firsthand investigations assembling and using appropriate equipment, following a planned procedure
- Collect data from firsthand investigation with accuracy appropriate to the task
- Make observations and measurements accurately, using appropriate units for physical quantities
- Communicate information, ideas and findings of investigation to others through appropriate representations and digital technologies
- Present information using appropriate scientific terminology
- Represent information in multi modal texts

Mathematics Subject Specific Skills:

- Operating with ratios and rates
- Operating with positive integer indices
- Describing and classifying triangles and quadrilaterals; determining if triangles are congruent
- When describing, representing, and explaining mathematical situations, concepts, methods and solutions to problem, using appropriate mathematical language terminology, tables, diagrams, graphs, symbols, notation and conventions
- Formulate and solve problems when using mathematics to represent unfamiliar or meaningful situations, design investigations and plan their approaches, apply strategies, and seek solutions, and verify that their answers are reasonable
- Build a strong foundation that enables students to adapt and transfer mathematical concepts
- Develop skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently, and appropriately, and recalling factual knowledge and concepts readily
- Make connections between related concepts and progressively apply the familiar to build new ideas

Literacy: subject specific terminology, using FoR to interpret problems

Numeracy: additive strategies, multiplicative strategies, comparing units, understanding geometric properties

4C's: critical reflection, communication, collaboration

Maths Quizzes	Science Quizzes	

Content Focus: Equations, Linear Relationships & The Physical World

Outcomes: MA4-10NA, MA4-11NA, MA4-1WM, MA4-2WM, MA4-3WM & SC4-11PW (PW3, PW4), SC4-5WS, SC4-6WS, SC4-7WS, SC4-9WS

Science Subject Specific Skills:

- Work collaboratively to conduct a range of investigations safely
- Increase skills in performing firsthand investigations assembling and using appropriate equipment, following a planned procedure
- Collect data from firsthand investigation with accuracy appropriate to the task
- Make observations and measurements accurately, using appropriate units for physical quantities
- · Communicate information, ideas and findings of investigation to others through appropriate representations and digital technologies
- Present information using appropriate scientific terminology
- Represent information in multi modal texts
- Organise and represent data and information to explain trends, patterns and relationships
- · Use critical thinking skills to analyse data and information, make predictions and evaluate evidence
- Evaluate the quality of the data, information, processes and evidence
- Use evidence to draw and justify conclusions

Mathematics Subject Specific Skills:

- simplifying algebraic expressions
- solving algebraic equations
- graphing and analysing linear relationships
- When describing, representing, and explaining mathematical situations, concepts, methods, and solutions to problem, using appropriate mathematical language terminology, tables, diagrams, graphs, symbols, notation, and conventions.
- Formulate and solve problems when using mathematics to represent unfamiliar or meaningful situations, design investigations and plan their approaches, apply strategies, and seek solutions, and verify that their answers are reasonable.
- Develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying, and generalising
- Develop an understanding of the relationships between the how and why of mathematics

Literacy: subject specific terminology, using FoR to interpret problems

Numeracy: additive strategies, multiplicative strategies, number patterns and algebraic thinking, positioning and locating

4C's: critical reflection, communication

			Project Portfolio		

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THE LIVING WORLD: How can we use data to protect species in our local area?

Content Focus: Single Variable Data Analysis, Probability & The Living World

Outcomes: MA4-20SP, MA4-21SP, MA4-1WM, MA4-2WM, MA4-3WM & SC4-15LW (LW4, LW5), SC4-7WS, SC4-9WS

Science Subject Specific Skills:

- Identify and construct questions
- Make predictions or hypotheses about possible outcomes
- Work collaboratively to conduct a range of investigations safely
- Increase skills in performing firsthand investigations assembling and using appropriate equipment, following a planned procedure
- Collect data from firsthand investigation with accuracy appropriate to the task
- Make observations and measurements accurately, using appropriate units for physical quantities
- · Communicate information, ideas and findings of investigation to others through appropriate representations and digital technologies
- Present information using appropriate scientific terminology
- Represent information in multi modal texts
- Using creative thinking to develop ideas and possibilities that are new and apply them in different and novel situations
- · Devising appropriate strategies to deal with issues and work through them in a logical and coherent way

Mathematics Subject Specific Skills:

- analysing single sets of data
- calculating summary statistics
- finding probabilities of simple and compound events
- When describing, representing, and explaining mathematical situations, concepts, methods, and solutions to problem, using appropriate mathematical language terminology, tables, diagrams, graphs, symbols, notation, and conventions.
- Formulate and solve problems when using mathematics to represent unfamiliar or meaningful situations, design investigations and plan their approaches, apply strategies, and seek solutions, and verify that their answers are reasonable.
- Develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying, and generalising
- Connecting related ideas, representing concepts in different ways, identify the commonalities and differences between aspects of content, describe their thinking mathematically and interpret mathematical information
- Develop skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily
- When they calculate answers efficiently, recognise robust ways of answering questions, choose appropriate methods and approximations, recall definitions and regularly used facts, and manipulate expressions and equations to find solutions

Literacy: subject specific terminology, using FoR to interpret problems

Numeracy: operating with decimals, operating with percentages, interpreting fractions, interpreting, and representing data, understanding chance

4C's: critical reflection, communication

Ecosystems & Data Task				