Education Scotland
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Numeracy in Social Studies

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Examples of contexts for learning across Social Studies to improve numeracy skills.

Transforming lives through learning

Introduction

Curriculum for Excellence emphasises the importance of ensuring that learners engage in joined up learning, where they use their skills across different areas of content and context. The teaching of numeracy is the responsibility of all curricular areas. Social Studies offer a rich opportunity to contextualise numeracy for children and young people. Across the range of Social Studies subjects there are many opportunities to enable learners to improve their numeracy skills, whilst enjoying the exciting learning opportunities which these contexts provide..

Social Studies Skills

- Observing, describing and recording
- Comparing and contrasting to draw valid conclusions
- Exploring and evaluating different types of sources and evidence
- Development of curiosity, problem solving skills and capacity to take initiatives
- Interacting with others and developing an awareness of self and others
- Planning and reviewing investigation strategies
- Developing the capacity for critical thinking through accessing and analysing and using information from a wide range of sources
- Discussion and informed debate
- Developing reasoned and justified points of view
- Developing and using maps in a variety of contexts
- Developing and applying skills in interpreting and displaying graphical representation of information
- Displaying an awareness of sequence and chronology
- Presentation skills – oral, written and multimedia

Numeracy and Mathematical Skills

- Interpret questions
- Select and communicate processes and solutions
- Justify choice of strategy used
- Link mathematical concepts
- Use mathematical vocabulary and notation
- Use mental agility
- Reason algebraically
- Determine the reasonableness of a solution

This paper offers examples of contexts across Social Studies where numeracy skills can be progressed and provides links to the Es and Os and the benchmarks. There are some links to the Maths experiences and outcomes, as particularly geographical skills can also align to mathematics.

Contexts for learning

Level/ Organiser	Possible context for learning	Maths and Numeracy Benchmarks	Social Studies Benchmarks
Early Level **Money**	MNU 0-09a SOC 0-020a Explore the roles of local shops and services through role-play. Discussion the difference between wants and needs.	• Identifies all coins to £2 • Applies addition and subtraction skills and uses 1p, 2p, 5p and 10p coins to pay the exact value for items to 10p.	• Identifies at least two different types of shops or services families might use, for example, supermarket or health centre..
First Level **Money**	MNU 1-09a MNU 1-09b SOC 1-20a SOC 1-21a SOC 1-22a Explore how businesses in the local community and how they meet the needs of children. Where do they shop, how do they know what they can buy with the coins they have? Invite local business people into school to answer questions. Experience the different roles, responsibilities and skills being part of different types of enterprise projects e.g. buying and selling, community improvements, Fair trade, Eco-schools, Tuck shop. Consider the budgets and costs needed to run certain Enterprise topics. Explore role-play scenarios for running businesses or different work skills and professions.	• Identifies and uses all coins and notes to £20 and explores the different ways of making the same total. • Uses a variety of coin and note combinations, to pay for items and give change within £10. • Demonstrates awareness of how goods can be paid for using cards and digital technology.	• Names two local organisations who provide for needs in the local community and describe what they do. • Demonstrates relevant numeracy skills to do a simple budget. • Describes at least two different types of jobs and give a reason why each contributes to the success of the business or enterprise.

	Research and explore how a business or product is delivered in greater detail eg school uniform, school milk, farm, post office.		
Second Level **Money**	MNU 2-09a MNU 2-09b MNU 2-09c SOC 2-20a SOC 2-21a SOC 2 22a Use Fair Trade as a theme to explore ethical trading and the consequences of unethical trading and consumerism on the economies and living conditions of other countries. Partnership with local banks and credit unions to explore the pros and cons of a different payments methods and practical activities related to budgeting and paying for goods and services with different methods. Experience different skills, responsibilities and challenges of working with money through a variety of Enterprise activities. Consider the profit, loss, and risk and start-up costs of a project. Research and write business plans to support an Enterprise project. Create links with local businesses to provide expert support, and provide opportunities for work placement.	• Compares cost and determines affordability within a given budget. • Demonstrates understanding of the benefits and risks of using bank cards and digital technologies. • Calculates profit and loss accurately, for example, when working with a budget for an enterprise activity.	• Identifies the main business functions such as production, sales, marketing and administration. • Takes a role in setting up or running a small enterprise. • Evaluates the success of the enterprise. • Identifies profit and non-profitmaking. organisations/enterprises including those whose services are free at the point of delivery, for example health and education.

Early Level **Time**	MNU 0-10a SOC 0-02a SOC 0-04a SOC 0-12a Interview grandparents or senior citizens in the community about the past, linking together the idea of generations past present and future. Study artefacts such as photos, video clips, clothes and toys from different years and decades and centuries to look at differences between the past and present. Role-play activities to life in the past in the school or local community.	• Links daily routines and personal events to time sequences.	• recalls past events from their own life or that of a special family member , for example learning to ride a bike or a special party. • Recognises that people in the past lived differently. • Uses knowledge of the past to demonstrate a difference between their life today and life in the past. For example diet, lifestyle, clothing. • Draws pictures to record the weather for three days.
First Level **Time**	MNU 1-10a MNU 1-10b MNU 1-10c SOC 1-02a SOC 1-03a SOC 1-04a SOC 1-06a Discuss key events and artefacts from History topics and order them on a timeline. Consider a calendar of events . Storyline topics to explore significant historical places or individuals. Using methods of joined up learning such as IDL to compare difference and similarities with the past. Why are significant people or past events remembered and how have they changed our lives?	• Uses and interprets a variety of calendars and 12 hour timetables to plan key events.	• Draws a short timeline and can locate two or more events on the line in the correct order. • Uses information learned from sources to relate the store of a local place or individual of historic interest through media such as drawings, models or writing. • Draws comparisons between modern life and life from a time in the past. • Names a figure from the past and comments on their role in events.

Second Level **Time**	MNU 2-10a MNU 2-10b MNU 2-1-c SOC 2-02s SOC 2-03a SOC 2-04a SOC 2-06a SOC2-09a Transport studies - changes in the use of different kinds of transport over time and think about how long journeys would take for each method. Which would be best? Create detailed timelines in a variety of ways (illustrations/ICT) to evidence significant dates, artefacts, people and events from history. Use a variety of primary and secondary evidence to explore history topics and show the similarities and differences between the present and past. Use of historical eras/periods such as Jacobites, Wars of Independence, WW2, Victorians. Debate the significance of historical figures and events and present informed evidence of their impact and legacy. Consider the changes over different centuries and decades in types of industry in Scotland and the UK.	• Estimates the duration of a journey based on knowledge of the link between speed, distance and time. • Uses and interprets a range of electronic and paper-based timetables and calendars to plan events or activities and solve real life problems.	• Identifies at least 4 ways in which journeys can be made. • Describes at least one advantage or disadvantage for each form of transport. • Uses both primary and secondary sources of evidence in an investigation about the past. • Places an event appropriately within a historical timeline.
Third Level **Time**	MNU 3-10a SOC 3-07a Conduct a river study where pupils can measure the width, depth and speed of a river. Speed can be determined by putting a float in the water over a measured distance.	• Applies knowledge of the relationship between speed, distance and time to find each of the three variables.	• Provides a simple explanation of at least three processes involved in the development of any chosen landscape, for example, coasts, volcanic, rivers or glaciated.
First Level **Measurement**	MNU 1-11a MNU 1-11b SOC 1-12a SOC 1-12b	• Uses knowledge of everyday objects to provide reasonable estimates of length, height, mass and capacity.	• Uses instruments to measure and record at least two different weather elements, for example,

	Design weather experiments and equipment (rainfall, temperature, wind direction, wind speed, air pressure) and record findings using tables and graphs.	• Makes accurate use of a range instruments including rulers, metre sticks, digital scales and measuring jugs when measuring lengths, heights, mass and capacities, using the most appropriate instrument for the task. • Compares measures with estimates. • Reads a variety of scales on measuring devices including those with simple fractions for example ½ litre..	temperature, rainfall, wind direction.
Second Level **Measurement**	*MTH 2-17a* MNU 2-20a MNU 2-20b SOC 2-12a Mapping – looking at different types of maps and different scales on maps. Measuring the distance on a map using scale.	• Demonstrates understanding of the conservation of measurement, for example, draw three different rectangles each within an area of $24cm^2$ • Estimates to the nearest uni, then measures accurately: length, height and distance in millimetres (mm), centimetres (cm), metres (m) and kilometres (km).	• Extracts information form more than one kind of map.
Third Level **Measurement**	MNU 3-11a MNU 3-11b SOC 3-12a Measuring distances on a variety of types of maps and charts. Use of contours and isobars.	• Chooses appropriate units for length, area and volume when solving practical problems.	• Provides a simple explanation for a weather pattern within a selected climate zone, for example convection rainfall in the rainforest.
Early Level **Data and analysis**	MNU 0-20a MNU 0-20b MNU 0-020c SOC 0-15a Explore a variety of evidence to discover the world e.g. internet, maps, books, film, globe, trips etc.	• Asks simple questions to collect data for a specific purpose. • Collects and organizes objects for a specific purpose. • Applies counting skills to ask and answer questions and makes relevant choices and decisions	• Identifies at least two sources of evidence which provide information about the world, for example, newspapers and television.

	Discuss the share opinions about how the evidence relates to their knowledge and understanding of a topic. Conduct basic surveys and present findings in a pictograph.	based on data. • Contributes to concrete or pictorial displays where one object or drawing represents one data value , using digital technologies as appropriate. • Interprets simple graphs, charts and signs and demonstrates how they support planning, choices and decision making.	
First Level **Data and analysis**	MNU 1-20a MNU 1-20b *MTH 1-21a* SOC 1-15a Use HOTS skills to create good research questions for topics, field trips or classroom visitors. Use and discuss a variety of graphic information and make decisions about the relevance and reliability of the evidence.	• Selects and uses the most appropriate way to gather and sort data for a given purpose, for example, a survey, questionnaire or group tallies. • Uses a variety of different methods, including the use of digital technologies, to display data, for example, as block graphs, bar graphs, tables, Carroll diagrams and Venn diagrams.	• Identifies a reliable and an unreliable source of evidence.
Second Level **Data and analysis**	MNU 2-20a MNU 2-20b *MTH 2-21a* SOC 2-09a SOC 2-15a SOC 2-22a Traffic surveys – counting the different types of vehicles and plotting on graphs, then drawing conclusions. Community surveys – travel to work, shop types as part of a local area study, drawing conclusions and presenting findings. Political Surveys – looking at opinion poll data on tables and graphs. Comparing different pieces of numerical data	• Devises ways of collecting data in the most suitable way for a given task. • Collects, organises and displays data accurately in a variety of ways including through the use of digital technologies, for example creating surveys, tables, bar graphs, line graphs, frequency tables, simple pie charts, and spreadsheets. • Analyses, interprets and draws conclusions from a variety of data. • Draws conclusions about the	• Identifies at least 4 ways in which journey can be made. • Describes at least one advantage and disadvantage about each form of transport. • Provides a basic explanation as to how the needs of a particular group within the local community can be supported, using relevant examples. • Describes the main ways of paying for goods and services acknowledging there may be advantages and disadvantages of

	and using this information to draw conclusions based on evidence possible use of the census data as a context looking at e.g. travel to work. Using weather statistics from charts and graphs, measure the impact of weather and climate between the local area and a foreign country. Research weather during important battles. Survey, record, and present information about tourism in the local area Market research of local businesses, products, and services for Enterprise activities.	reliability of data taking into account, for example, the author, the audience, the scale used and the sample size used. • *Displays data appropriately making effective use of technology and chooses a suitable scale when creating graphs*.	each method.
Third Level **Data analysis**	MNU 3-20a *MTH 3-21a* SOC 3-15 a SOC 16a Using data from air quality surveys to compare the quality of life of different areas and consider the consequences of different levels of particulates – this could have an international dimension. Using census data to make comparisons and draw conclusions about topics such as population change through the use of population pyramids.	• Sources information or collects data making use of digital technology where appropriate. • Interprets data sourced or given. • Describes trends in data using appropriate language, for example increasing trend. • *Organises and displays data appropriately in a variety of forms, for example, compound bar and line graphs and pie charts, making effective use of technology as appropriate.*	• Reviews basic sources of evidence such as newspapers or surveys used in arguments about current affairs to form a valid opinion.
Early Level **Estimation and Rounding**	MNU 0-01a SOC 0-07a Ideas of bigger and smaller, more and less can be developed in a social studies context such as	• Recognises the number of objects in a group without counting. • Checks estimates by counting. • Demonstrates skills of estimation in	• Draws a simple map, or shares a relevant experience of the route of a straightforward journey, and the method of transport used.

	size of classroom and number of desks, to height of land and weather readings.	the contexts of number and measure using relevant vocabulary , including less than, longer than, more than and the same.	• Identifiers simple features of the local environment, for example hill, river, road, railway.
First Level **Estimation and Rounding**	MNU 1-01a SOC 1-07a Learners can consider what is far and what is near in their local surroundings. Learners can consider what journeys might be longer or shorter.	• Uses strategies to estimate an answer to a calculation or problem, for example doubling and rounding.	• Draws or makes a model of features in their local landscape, for example, hill, river, building.
Second Level **Estimation and Rounding**	MNU 2-01a SOC 2–13a SOC 2-14a Using data to compare countries to each other for topics such as population. Understanding that data can rounded and the implications for accuracy.	• Applies knowledge of rounding to give an estimate to a calculation appropriate to the context.	• Provides explanation as to why their physical environment influences the way in which people use land in comparison to a contrasting area. • Extracts information from more than one kind of map.
Third Level **Estimation and Rounding**	MNU 3-01a MNU 3-03a SOC 3-14a Interpreting data from graphs where data is estimated, for example opinion polls. Consider the accuracy and use of that information, for example the makeup and size of the sample. Working out height from contour maps.	• Uses rounding to routinely estimate the answers to calculations. • Solves addition and subtraction problems working with integers.	• Reviews at least two simple graphical sources to interpret information and form a conclusion, for example, a map and a graph. • Uses relevant numeracy and digital technology skills to interpret at least two sources of data from maps and graphical information systems.
Second Level **Fraction,**	MNU 2-07a SOC 2-09a Use different methods to display information,	• Calculates simple percentages of a quantity, and uses this knowledge to solve problems in everyday contexts.	• Identifies at least four ways in which journeys can be made. • Describes at least one advantage

Decimal Fractions and Percentages	including pie charts to demonstrate for example travel to work survey, pollution, journey cost or speed.	• Calculates simple fractions of a	and disadvantage for each form of transport.
Third Level **Fraction, Decimal Fractions and Percentages**	MNU 3-07a SOC 3-12a Uses knowledge of fractions, decimal fractions and percentages to carry out calculations with and without a calculator..	• Organises and displays data appropriately in a variety of forms, for example compound bar and line graphs and pie charts, making effective use of technology as appropriate.	• Demonstrates a basic understanding of weather and climate. • Provides a simple explanation for a weather pattern within a selected climate zone, for example, convection rainfall in the rainforest.
Second Level **Number and Number processes**	MNU 2-20a MNU 2-04a SOC 2-12a Ability to read climate graphs, showing rainfall and temperature, including negative temperatures. Tourism – looking at the changes in the number and destinations of tourists over time.	• Analyses, interprets and draws conclusions from a variety of data. • Identifies familiar contexts within which negative numbers are used. • Orders numbers less than zero and locates them on a number line. • Reads, writes and orders whole numbers to 1,000,000, starting from any number in the sequence. • Reads, writes and orders decimal fractions to three decimal places.	• Compares and contrasts differing effects of the weather on the people and society of Britain and a contrasting area, providing at least three similarities and/or differences.
Third Level **Number and Number processes**	MNU 3-03a MNU 3-04a MNU 3-07a MNU 3-09c SOC 3-12a SOC 3-12a SOC SOC 3-21a Drawing climate graphs including the use of negative numbers. Compare the economy of the UK and Scotland in the pre and post was eras. Understand the definitions of LEDC and MEDCs and how the statistical measures contribute to these definitions.	• Solves addition and subtraction problems working with whole numbers and decimal fractions to three decimal places. • Solves addition and subtraction problems working with integers. • Solves problems in which quantities are increased or decreased proportionally. • Converts between different	• Identifies at least three social and economic differences between developed and developing countries, for example infant mortality, %age adult literacy rate, Gross National Product per capita. • Demonstrates a basic understanding of the relationship between weather and climate. • Provides a simple explanation for a

	Comparison activities about the industrial output of a country Impact of economy on society eg GNP and GDP – discussion about these measures and how they are constructed.	currencies. • Demonstrates knowledge of financial terms, for example, debit/credit card, APR, pa, direct debit/standing order and interest rate.	weather pattern within a selected climate zone, for example. convection rainfall in the rainforest • Outlines and costs and benefits of saving and investing money and the costs and benefits of borrowing money.

As stated above, as well as numeracy outcomes, some aspects of Social Studies particularly People and Place and Environment can also provide good contexts for Mathematics outcomes.

Early Level **Angle, symmetry and transformation**	MTH 0-017a SOC 0-09a Programming and making maps with Beebots and Roamers to make journeys. Create simple maps of classroom/ playground. Play a variety of movement games related to topics where learners have to follow instructions, give instructions, and describe positions.	• Understands and correctly uses the language of position and direction, including front, behind, above, below, left, right, forwards and backwards, to solve simple problems in movement games.	• Draws a simple map, or shares a relevant experience of a simple journey and the method of transport used.
First Level **Angle, symmetry and transformation**	MTH 1-17a MTH 1-18a SOC 1-14a Explore making maps, following maps and writing instructions for different journeys and purposes eg journeys to school or how to get to the Post Office. Use 4 basic compass points and basic grid references to record and locate information on maps. Develop the skills through activities related to topics such as treasure hunts or orienteering tasks.	• Uses technology and other methods to describe, follow and record directions using words associated with angles, directions and turns including full turn, half turn, quarter turn, clockwise, anticlockwise, right turn, left turn, right angle. • Knows and uses the compass points, North, South, East and West. • Identifies where and why grid references are used. • Describes, plots and uses accurate	• Produce a basic map for a familiar journey.

		two figure grid references, demonstrating knowledge of horizontal and vertical location.	
Second Level **Angle, symmetry and transformation**	MTH 2-17a MTH 2-17b MTH 2-17c MTH 2-17d MTH 2-18a MTH 2-19a SOC 2-13a Draw and create maps for different purposes that include calculations of grid coordinates and scale. Create a variety of maps using digital software and online mapping tools. Use angles and compass points to navigate routes in orienteering activities. Plot and conduct treasure hunt activities using mobile devices and GPS technologies.	• Uses knowledge of the link between the eight compass points and angles to describe, follow and record directions. • Interprets maps, models or plans with simple scales, for example 1cm:2km. • Describes, plots and records the location of a point, in the first quadrant using coordinate notation.	• Extracts information from more than one kind of map.
Third Level **Angle, symmetry and transformation**	MTH 3-17c MTH 3-17b SOC 3-14a Use of 6-figure grid references on a variety of types of maps. Produce several maps of the same area at different scales and decide which is most appropriate for the information being displayed.	• Applies knowledge and understanding of scale to enlarge and reduce objects in size showing understanding of linear scale factor.	• Reviews at least two simple graphical sources to interpret information and form a conclusion, for example, from a map and graph. • Uses relevant numeracy and digital technology skills to interpret at least two sources of data from maps and graphical information systems.
Second Level **Data analysis**	MTH 2-21a SOC 2-12a Plotting weather data recorded onto both line and bar graphs.	• Displays data appropriately making effective use of technology and chooses a suitable scale when creating graphs.	• Compares and contrasts the differing effects of weather on the people and society of Britain and a contrasting area, providing at least three similarities and/or differences.
Third Level	MTH 3-21a SOC 3-12a	• Organizes and displays data	• Demonstrates a basic

Measurement	Climate comparison using numerical data on temperature and rainfall and the plotting of these on a climate graph.	appropriately in a variety of forms, for example, compound bar and line graphs and pie charts, making effective use of technology as appropriate.	understanding of the relationship between weather and climate. • Provides a simple explanation for a weather pattern within a selected climate zone, for example, convection rainfall in the rainforest.

Web links

Social Studies experiences and outcomes
https://education.gov.scot/scottish-education-system/policy-for-scottish-education/policy-drivers/cfe-(building-from-the-statement-appendix-incl-btc1-5)/Experiences%20and%20outcomes

Social Studies Benchmarks
https://education.gov.scot/improvement/learning-resources/Curriculum%20for%20Excellence%20Benchmarks

National Numeracy Progression Framework
https://education.gov.scot/improvement/research/National%20Numeracy%20and%20Mathematics%20Progression%20Framework%20(NNMPF)

Numeracy and Mathematics experiences and outcomes
https://education.gov.scot/scottish-education-system/policy-for-scottish-education/policy-drivers/cfe-(building-from-the-statement-appendix-incl-btc1-5)/Experiences%20and%20outcomes