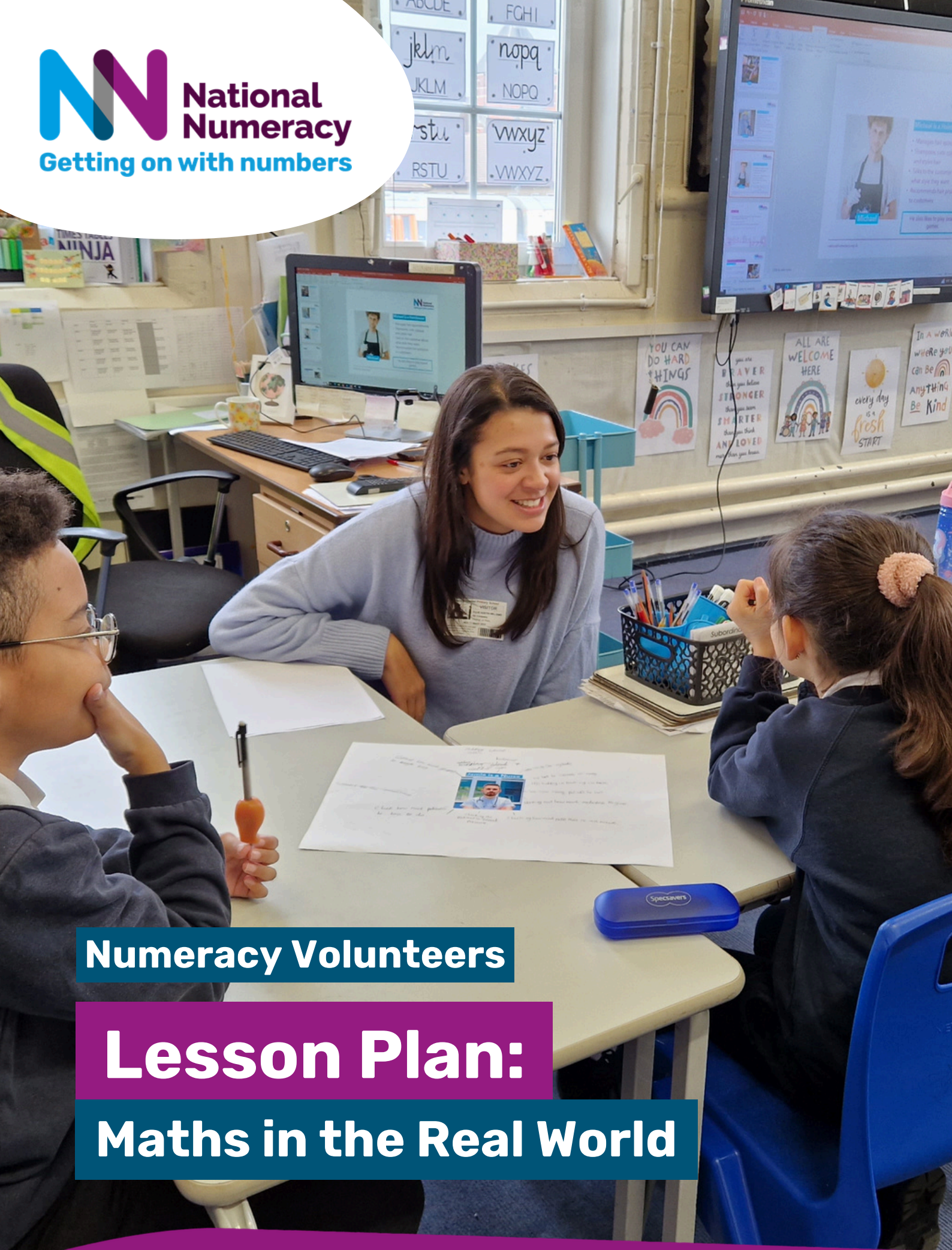
National Numeracy

Getting on with numbers



Numeracy Volunteers

Lesson Plan:

Maths in the Real World

Class teacher delivered and volunteer supported lesson

This lesson supports pupils to explore the maths that's needed for jobs and hobbies in life beyond school. It will help them see the value of learning maths and understand how what they learn in school relates to everyday life.

If parents/carers are attending, the activity also aims to engage them in their children's maths learning, support positive conversations about maths between parents/carers and their children and help to build a partnership between schools and families to support pupils' learning.

We suggest that this lesson takes 50 – 60 minutes. Please use the slide deck to guide you through the lesson.

Resources Needed:

- 5 or 6 large pieces of paper or poster paper
- Copies of each character sheet with their job and hobby on (you can print them from the slide deck)
- Marker pens and coloured pencils
- Character maths prompts/answers – one per group facilitator
- Reflective activity Maths in My World worksheets – one per child
- A laptop and screen to display the slides

Set Up Before the Lesson:

1. Place one large sheet of paper and one character sheet on each table.
2. Divide the pupils into 5 or 6 table groups.
3. Give each group access to marker pens or coloured pencils.
4. Make sure each group facilitator has the character maths prompts/answers (below).
5. Display the slide deck on the screen ready to guide the session.
6. Option to create your own characters with job roles/hobbies on the slide deck using the template.

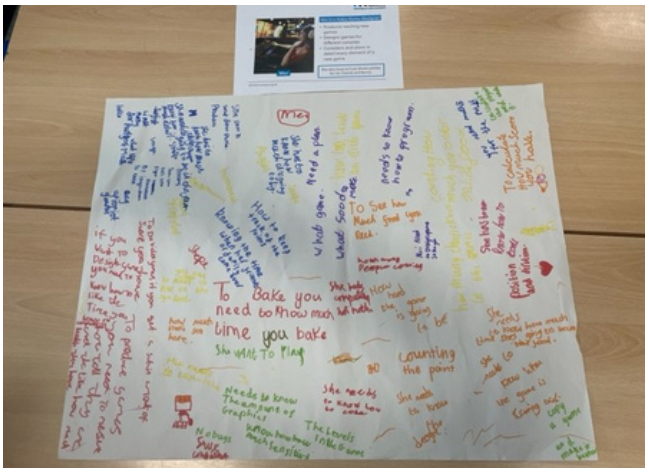
National Numeracy
Getting on with numbers

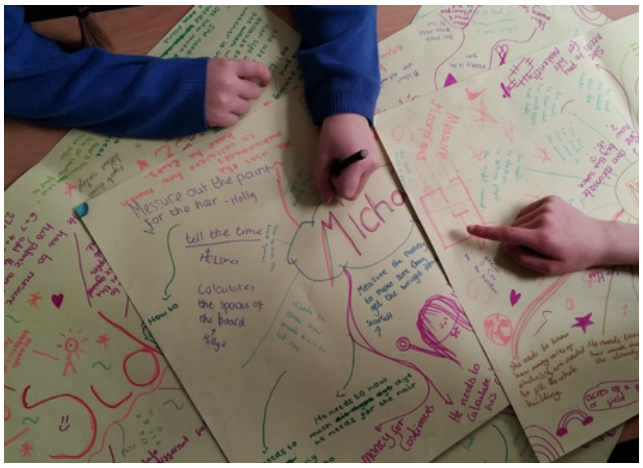
Lesson Delivery

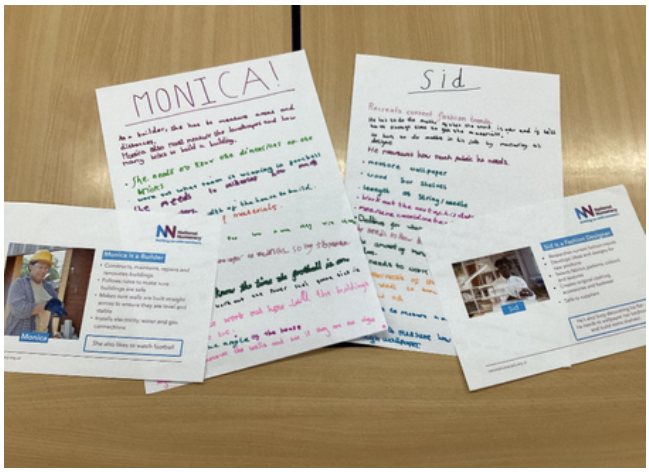
Activity	Time	Description
Introduce the Session	**5 mins**	Use the slides to introduce the aims of the session. Explain that pupils will be thinking about how maths is used in different jobs, hobbies and everyday situations.
Volunteer Introductions	**5 mins**	Invite volunteers to briefly introduce themselves. They should explain their job, one hobby they have outside work, and where they use maths in both their job and hobby.
Run the Carousel Activity	**30 mins**	1. Each group starts with one character sheet. 2. Give groups 5 minutes to write down how they think the character uses maths in their job and hobby. 3. When the time is up, move the character sheets to the next group. 4. Groups keep the same large sheet of paper throughout, so they do not see what other groups have written. 5. Repeat until each character has visited every group.
Facilitate and Share Ideas	**10 mins**	During the carousel, volunteers, teachers, teaching assistants and parents/carers should support table discussions using the character maths prompts and answers. Once each character has visited every table, bring the class back together and choose one of the following approaches: • The teacher holds up each poster and talks through the ideas added. • The teacher asks pupils to share ideas for each character as part of a class discussion. • The posters are displayed on the wall for pupils to review.

Lesson Delivery

Activity	Time	Description
Alternative Delivery Option	**30-40 mins**	If a carousel is not practical, the whole class can look at the same character at the same time. Display each character on the screen, ask groups to discuss their ideas, then gather responses through whole-class discussion before moving on to the next character.
Individual Reflection Activity	**10 mins**	Hand out the Maths in My World worksheet and ask pupils to complete it individually. If you run out of time this can be used as a take home activity







Maths Prompts/Answers for the Carousel Activity

National Numeracy
Getting on with numbers

The table below shows some answers but because there are so many possible uses of maths, this is not a full list. In general, any reasonable response should be encouraged.

Name	Prompt questions	Answers for how they use maths in their job	Answers for how they use maths in their hobby
Jamie	• **What might a nurse need to measure?** • **What numbers might a nurse need to know/use?** • **What numbers are used in baking?** • **What if Jamie's recipe isn't big enough for all his friends to have a cake?**	**Nurse** • Working out what amount of medicine to give • Understanding patient information • Taking patient readings such as blood pressure and temperature	**Baking** • Using complicated timings to ensure everything is ready at the right time • Weighing and measuring ingredients • Multiplying up ingredients to bake products for the right number of people
Sid	• **What numbers might Sid need to use to make and sell clothes?** • **What if Sid needs to make another jumper but needs it in a bigger size?** • **How would Sid use patterns to help him at work?** • **What are the steps Sid would need to follow before putting up the shelves? Are there certain things he will need to work out first?**	**Fashion Designer** • Use of patterns and angles to create great designs • Calculating measurements to ensure clothes will fit • Use of fractions, percentages and ratio to size clothing up and down • Calculating cost of fabrics, thread, time and equipment work out the cost of the items	**DIY** • Measuring materials • Buying the right quantities at the best price • Using shapes in design • Understanding instructions e.g., 'place the plank parallel to the window.'

National Numeracy
Getting on with numbers

Maths Prompts/Answers for the Carousel Activity continued

Name	Prompt questions	Answers for how they use maths in their job	Answers for how they use maths in their hobby
Maryam	• **What information would Maryam need to collect about the weather?** • **How might she compare weather data? Will she need to use charts/graphs?** • **Will she need to convert any units e.g temperature for a different country?** • **How might numbers/measurements be involved in mixing paint to get a correct colour?**	**Weather Forecaster** • Measuring the air pressure (baramoter), rain (rain gauge), sun (sunshine recorder) temperature (thermometer), wind (wind vane) • Using computer programmes to predict the weather • Analysing data using graphs	**Painting** • Mixing paint colours with the right ratio • Ordering the right size canvasses and or frames • Understanding proportion to keep paintings life like • Estimating the amount of paint needed to make sure there is enough of each colour
Mei	• **What parts of maths might be used in designing the look of the game?** • **How would Mei make sure the game works?** • **What numbers are involved in Mei cooking dinner for her friends - time/weight etc?** • **What would Mei need to work out if she only had a certain amount of money to buy all the necessary ingredients?**	**Video Games Designer** • Using angles, shapes and geometry in gameplay design • Using numbers and data for coding • Scaling and proportion to make realistic settings and characters • Using probability to assess chances of a level being completed	**Hosting dinner parties** • Using timings to make sure all the courses are ready at the right time • Buying ingredients within a budget • Getting the right amounts for the number of guests, which may not match the recipes • Weighing ingredients, converting from pounds and ounces to kilograms

National Numeracy
Getting on with numbers

Maths Prompts/Answers for the Carousel Activity continued

Name	Prompt questions	Answers for how they use maths in their job	Answers for how they use maths in their hobby
Monica	• **What will Monica need to measure at work? Could this involve conversions?** • **What numbers will go into planning the building project- could it be time/money/number of staff etc?** • **How does Monica use maths and numbers to understand which team is winning/had the most possession of the ball?** • **How can Maths help her estimate who will win the league?**	**Builder** • Using ratio to mix cement • Understanding scale of plans to ensure it's built correctly • Measuring materials • Project management – using time to plan the project	**Watching football** • Understanding the league table • Understanding statistics such as the percentage time a team has had the ball • Working out who would win the league on the last day with different results • Keeping her fantasy football team within budget
Michael	• **What does Michael need to work out when mixing hair dye so he gets the correct colour?** • **How will Michael use maths to plan his appointment times?** • **What does Michael need to know when charging customers for their haircuts?** • **Are there any board games that involve money/time/coordinates /keeping score?**	**Hairdresser** • Understanding shape • Using measurements for example, the customer would like 2 inches trimmed • Mixing colours and dyes using the correct ratio • Making appointments and planning enough time for each customer	**Playing board games** • Keeping score in Scrabble • Using money in Monopoly – knowing when to re-mortgage a property, whether to buy at auction • Understanding probabilities – what are the chances you would roll a double • Using coordinates in Battleships

Individual reflective activity

Name: _____

Maths in My World

Tell us about a hobby or something you do regularly and how it involves using maths?

Ideas could include – baking, shopping, getting to school, going on a day out with friends or family or playing a sport. Think about things like measuring, counting, telling the time, counting money, reading a bus timetable.

Design a poster to show your activity and how you use maths.

Discuss on your table and with your helpers - what would happen if you didn't use maths when you are doing this activity?

Following the carousel activity, pupils are asked to complete the individual reflective activity 'Maths in My World' about their own hobby, something they do regularly or a job they are interested in and how they might use maths in these. This could be given out as homework if lesson time is limited.

Parents or Carers

If parents and carers are attending, please give them a handout to take away.

Our Characters

Choose five or all six, depending on the number of groups and tables you have in the classroom. We will let you know the job title and hobby of your real-life volunteer characters prior to the session.

Name	Job	Hobby	What does the job involve?
Jamie	Nurse	Baking	• Cares for people suffering from illnesses and injuries • Checks and gives medicines • Helping with x-rays and blood tests • Watching and writing down the patient's progress
Sid	Fashion Designer	DIY	• Researching current fashion trends • Developing designs for new products • Selecting fabrics, patterns and colours • Creating original clothing, accessories and footwear • Selling to suppliers
Maryam	Weather Forecaster	Painting	• Studying the weather and climate • Collecting data from the land, sea and atmosphere • Forecasting the weather

Our Characters - continued

Name	Job	Hobby	What does the job involve?
Mei	Video Game Designer	Hosting Dinner Parties	• Produces exciting new games • Designs games for different consoles • Considers and plans in detail every element of a new game
Monica	Builder	Watching Football	• Constructs, maintains, repairs and renovates buildings • Follows rules to make sure buildings are safe • Makes sure walls are built straight across to ensure they are level and stable • Installs electricity, water and gas connections
Michael	Hairdresser	Board Games	• Manages hair appointments • Shampoos, cuts, colours and styles hair • Talks to the customer about what style they want • Recommends hair products to customers