

Museums and other informal education settings provide an excellent opportunity to demonstrate the applications of maths, and to highlight how it influences our everyday lives and is more than just a subject learned in school.

Here we share our top tips for exploring maths in museums...

# 1

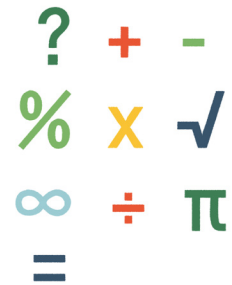
## SHOWCASE THE MATHS IN YOUR COLLECTION

Mathematicians' passion, creativity and problem-solving skills have provided solutions to real-world problems throughout history. Whether it's space exploration, computing technology, medical discoveries or engineering feats museums provide excellent opportunities to explore how maths has changed and enriched our lives. Some museum objects – such as abaci, compasses and measuring scales – are easily associated with maths, but every object will have maths at its heart, from design to manufacture and distribution.

# 2

## USE MATHS CURRICULUM TERMINOLOGY

Most people's knowledge and experience of maths comes from their experiences in school. Familiarise yourself with the terminology used in the current maths curriculum, but don't be led or put off by it. Identify where maths themes directly link to your collection, but avoid focusing on specific maths content or make the experience feel like a maths lesson. Using maths language that is used in school will help people recognise when they have a maths-related experience.



# 3

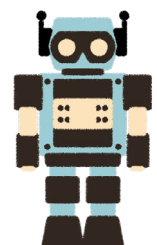
## BUILD MATHS CONFIDENCE

Many people, both visitors and staff, feel anxious when faced with maths, and it's not uncommon to hear the phrase 'I can't do maths'. Help improve attitudes towards maths by creating a welcoming and supportive environment, and give people choice and control so they can participate at a level they feel comfortable with. Provide opportunities for people to contribute and ask questions, and give lots of positive reinforcement such as 'great problem-solving' or 'excellent reasoning skills' to boost confidence.

# 4

## SHOW THE APPLICATIONS OF MATHS

Maths is all around us, from how we measure time and how our goods and services are assigned value, to how our journeys are mapped. It can be difficult to recognise where it is applied, so help people to personally connect with the importance and value of maths by showing them where and how it benefits and links to all our everyday lives.



# 5

## HIGHLIGHT AND DEVELOP MATHS SKILLS

Whether it's measuring out the ingredients for making a meal or baking biscuits, estimating the time it takes to do something, or using spatial awareness to pass a football, we all use maths skills in our everyday lives, often without realising. Help people recognise that they already have and use maths skills by highlighting them and positively reinforcing their skills and abilities.

# 6

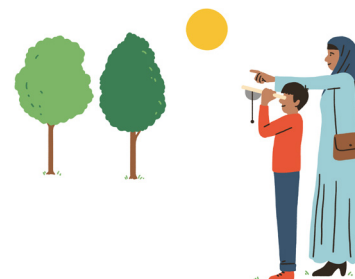
## BROADEN THE PERCEPTION OF WHO USES MATHS

From nurses and carpenters to figure skaters and architects, people use maths in most jobs. Whether they are analysing charts, calculating the cost of materials or managing their time, mathematical skills and knowledge are applied every day. These tasks are not always recognised as maths because this is not how maths was taught in school, so showcase and highlight the diverse jobs, people and tasks that use and benefit from maths.

# 7

## BE PLAYFUL WITH MATHS

Draw on the strengths of being an informal environment and develop maths experiences and activities which encourage active participation and social interaction. Create a sense of awe and wonder about maths by giving people choice and control, and spark people's curiosity by inviting them to get hands-on in a creative way, such as by playing a game or completing challenges to make their experience more memorable and inspiring.



# 8

## PROMOTE MATHS TALK AND DISCUSSION

Design experiences which include opportunities to talk about maths and encourage people to share their views and opinions with you and with each other. For example, discuss what they like about a pattern (can they see how it repeats?), encourage people to estimate amounts, or consider the value they would assign to something. Discussion gives people the opportunity to direct the conversation and follow their own interests.

# 9

## EMBED MATHS THROUGHOUT

Maths doesn't need to be a specific focus or theme of an activity, it can be threaded through and embedded into any experience that you deliver to showcase where and how maths is used and applied. Find opportunities to make links in activities that are not primarily maths-based, but be specific about what these links are, and avoid general statements such as 'there is a lot of maths in art' – instead talk about 'maths in the shapes and spacing used'.



# 10

## REVEAL THE BEAUTY AND WONDER OF MATHS

Maths helps us to create order, even spacing, pleasing shapes, patterns and precise angles – all of which can give aesthetic pleasure and be considered beautiful. This beauty can be found all around us in architecture and in nature. Share the beauty and creativity of maths by highlighting interesting examples throughout the museum and in your local environment.

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### EXPLORE MORE

To find out more about Science Museum Group Learning, including resources to use in informal learning experiences, at home and in the classroom; training opportunities; and insights and research around STEM engagement, visit: [learning.sciencemuseumgroup.org.uk](https://learning.sciencemuseumgroup.org.uk)

For further information, contact us at: [SMGAcademy@sciencemuseum.ac.uk](mailto:SMGAcademy@sciencemuseum.ac.uk)

Please write 'Top Tips: Exploring Maths in Museums' in your email subject line.