

Maths Week Scotland

Second Level

Welcome to Maths Week Scotland!

Maths Week Scotland is taking place 28 September – 4 October with events online plus activities and ideas for you to do.

This pack contains ways to celebrate and enjoy Maths Week Scotland with your second level children, either at home or school. Online versions are available at www.mathsweek.scot

We would love to see what you get up to. Share your celebrations with us on [Twitter @edscot_maths](#) [#MathsWeekScot](#) or [@MathsWeekScot](#)

ACTIVITY IDEAS

Dominoes Conundrum

Solve the puzzle in pairs or individually.

Amy has a box containing ordinary domino pieces but she does not think she has a complete set.

She has 24 dominoes in her box and there are 125 spots on them altogether.

Which of her domino pieces are missing? How do you know?

It is useful to use a set of dominoes to solve this problem. If you do not have a set of dominoes an interactive set can be found on the [NRICH](#) website.

Odd One Out

Complete this as a class, groups or pairs.

Provide four images, numbers or questions and ask learners to identify the odd one out and give an explanation of why. To get more out of the challenge, choose four images where any of them could be the odd one out, given the appropriate reason.

Treasure Hunt



Learners can complete this activity in pairs or set this challenge for a small group of classmates.

Design a treasure hunt using some maths topics that you have been learning about recently.

Write ten questions on cards, write their answers inside large circles on *different* cards and then randomly number them.

For example, on card 1 you could ask “How many lines of symmetry does a square have?” and on card 6 write the answer “4” inside the large circle.

When you have finished, you should have a loop of questions and answers

on the cards. Learners look for the answer to their current question, and will find their next question on that card. It’s important that each question has a unique answer.

Different groups can complete this task at the same time if they are each given a different question to start on.

OUTDOORS

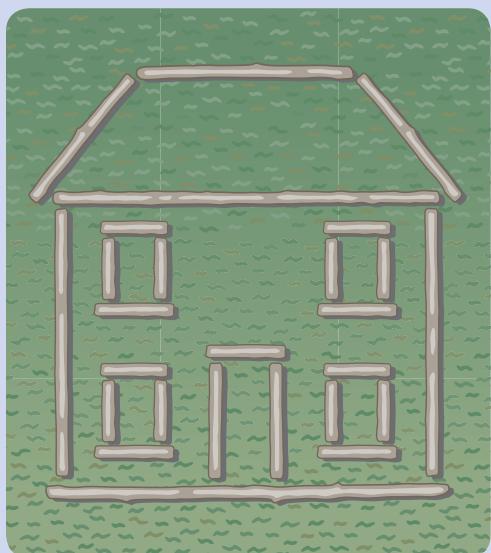
Sticks and Angles

Collect a range of sticks of different lengths.

Challenge learners to be the first person to make a picture using the sticks that includes all of the following.

- a right angle
- an acute angle
- a straight angle
- an obtuse angle
- a reflex angle.

The first person to create a picture with all of these is the winner!



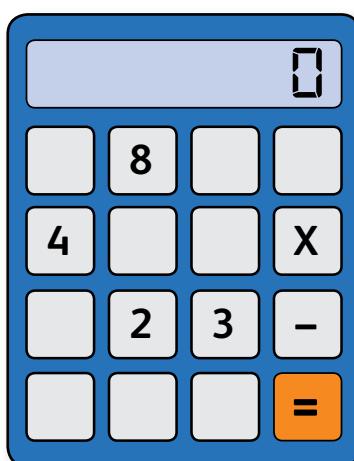
A description of the different types of angles can be found [here](#).

Broken Calculator

Complete in pairs, using the image below of a broken calculator or by designing their own.

Write down the numbers 0 to 20.

Take it in turns to select one of the numbers and make the number using only the number and symbol keys that are left on the broken calculator.



Learners cannot use the same buttons as their partner to make the same number once they have used them!

For example, if someone makes 2 using $8 - 4 - 2$ then the other would have to choose another combination like $8 - 3 \times 2$.

Score a point for each number that you can make. Highest score wins!

Play this game again by changing the numbers and symbols left on the broken calculator.

Misleading Statistics

Learners can complete this activity alone or together in their groups.

Let's look at the different types of graphs and charts used to display data, and how the way data is presented can sometimes make graphs **misleading**!

A teacher sent out a survey to their class asking them about their favourite school activities. The results from this survey have been presented in two different ways.

One is displayed as a pie chart and the other as a bar graph.

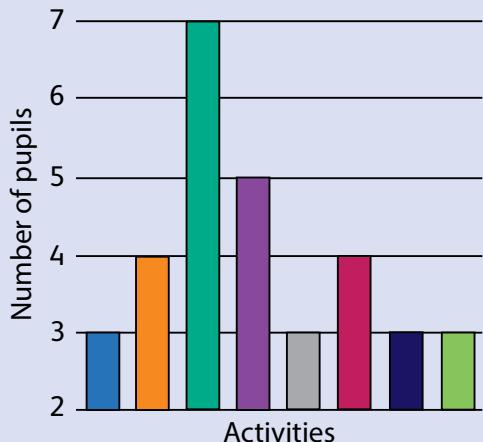
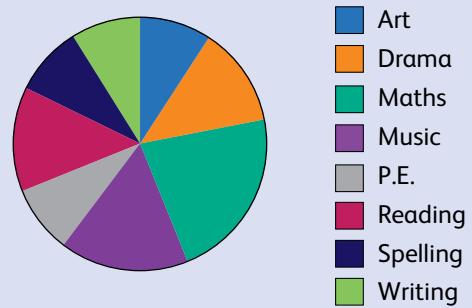
Discuss how the data is displayed. Do you think the pie chart or the bar graph displays the survey results clearly?

In the pie chart, are you able to compare the results to work out the most and least favourite activity? What would make this pie chart easier to read?

In the bar graph, has a fair scale been used? What would happen to the graph if you used a different scale?

Discuss any changes that you could make to improve the pie chart and graph.

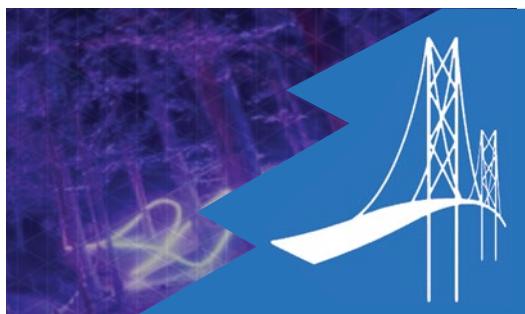
Primary 6 – Favourite School Activities



MATHS AT WORK

Maths is important in a huge range of jobs and careers.

Women in Maths



You can find five short videos online.

Maths sits at the core of these women's roles. [Watch the videos](#), read the interviews and discuss the following questions.

Afterwards discuss

- Which roles surprised you as containing maths?
- Could you see any maths that you are currently learning about mentioned in the videos or interviews?
- Think of a job of someone you know. What are the maths skills you might need for this job?

Logistics Engineer

Complete this activity alone or in pairs.

Imagine you work for a delivery company and are in charge of ensuring that their trucks are safely loaded. The maximum weight of a fully loaded truck, including drivers and fuel, must not be more than 18,000 kg.

You need to *estimate* the total weight of a loaded truck using the information in the tables opposite, to work out how many trips will be needed to complete the whole delivery, and the weight of the loaded truck each time.

- All of the large boxes must be packed on the first trip
- The truck is refuelled for every trip

Item	Weight
Truck weight (empty)	9000 kg
Fuel tank weight (full)	300 kg
Driver 1 weight	77 kg
Driver 2 weight	93 kg
Driver luggage weight	46 kg

Box Size	Weight of Single Box	Number of Boxes
Small box	56 kg	49
Medium box	108 kg	82
Large box	193 kg	23

Once you have completed the activity by estimating, check your answers by calculating the exact weight for each trip!

Think about what other restrictions logistics engineers might encounter for example a limited number of trucks or drivers.

Architect



Work through this activity in pairs or small groups.

Show this BBC video, '[Proud to be an Architect](#)' to the class to inspire their thinking.

Look around your classroom or school campus for different 2D shapes and 3D objects used in the building design.

How many can you see?

Can you name them?

Can you think of different ways to describe how the shapes and objects look? For example, how many sides, faces, edges and vertices do they have?

Look at different parts of the room or building, and discuss together why you think they have been designed in this way. For example, this might be structural (to support the building to stay up or help the building last in Scotland's weather conditions!) or aesthetic (to create an attractive space for learners or to match the features of other buildings close by).

Can you design a building using 2D shapes and 3D objects which has structural and aesthetic features?

STEM Ambassadors

STEM Ambassadors are people working in STEM industries or with an interest in STEM available to talk to classes, run activities or help you plan sessions related to their work.

Browse [STEM Ambassador offers](#) or request support to bring maths at work to life.

MATHS WEEK SCOTLAND COMPETITIONS

Deputy First Minister Daily Challenges

Every day during Maths Week Scotland the Deputy Fist Minister will be setting a daily challenge.

Follow [@JohnSwinney](#) and [@MathsWeekScot](#) on Twitter to take part.

Sumdog

Take part in the Maths Week Scotland Sumdog competition running 28 September – 1 October 2020.

Register your school and see if you can top the leaderboard to win fantastic prizes.

Maths Inside

Get your cameras ready to get out and about and find the *Maths Inside* your daily life.

The Maths Inside photography competition has categories for early years up to adult so teachers and parents can enter too!

Enter at <https://mathsinside.com/#about>

Maths Wi Nae Borders

Inspired by the annual *Mathématiques sans Frontières* contest, this minicompetition is for any class to complete together.

Enter at <https://www.mathsweek.scot/schools/maths-week-challenges>

Mangahigh

Get your school competing in the M-Fluencers Maths Week Scotland Quest to win amazing prizes for your students, your school and yourself.

[Register now.](#)

FIND OUT MORE

Head to the Maths Week Scotland website www.mathsweek.scot for more activities and free online CLPL opportunities.

Scottish Book Trust

Explore maths through story-telling and stories with videos from [Scottish Book Trust](#) authors and suggested story time books.

Further resources at:

- Scotland Learns – Numeracy and Mathematics – Parent Tasks
- Dara Startegy Games – [Download here](#)
- Newspaper Forts



**Education
Scotland**
Foghlam Alba