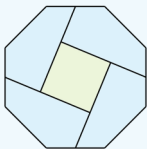


# Summer Holiday 2019

Deputy First Minister's Maths Challenge

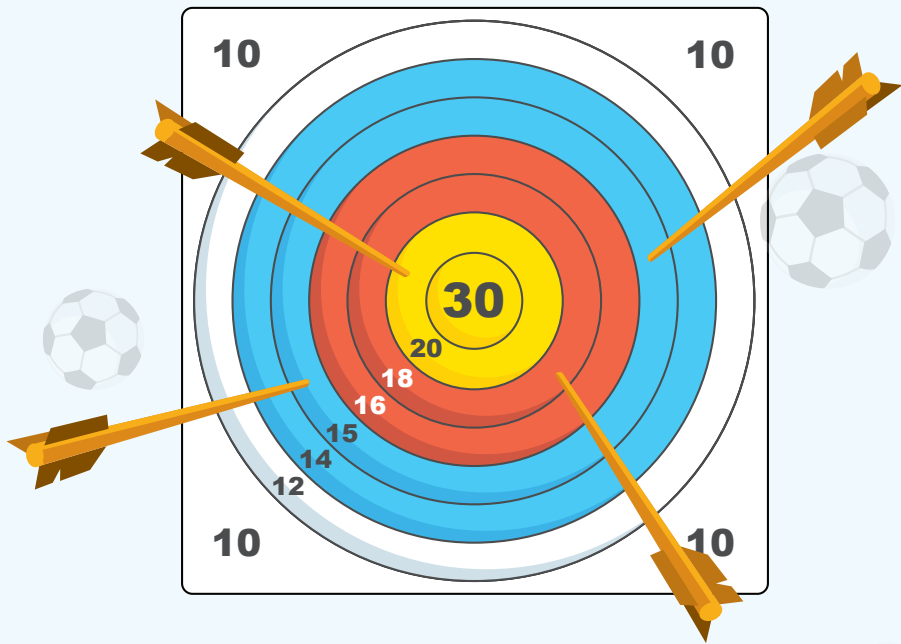


The Scottish  
Mathematical  
Council



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

# Puzzle 1 – Family Archery Challenge



On their Summer holiday, the Archer family go to an archery activity and compete against each other. Based on the target scoreboard above, can you work out the following puzzles:

All of the arrows land on the board and each round has 4 arrows.

Round 1 – Mum scores 54, Dad scores 55, Iona scores 70 and Harris scores 58. Suggest how each family member might have scored with their arrows to get their total.

Round 2 – Each member of the family scores the same total with their 4 arrows. Can you find a total where they managed this with different combinations of arrows? Scores on the target board can be used more than once.

There is a sign offering anyone that scores **over 60 with 3 arrows** another game free. How many possibilities can you come up with for this, and what are they?

Why not create a similar game by making a target board and throwing coins or counters, keeping your maths skills sharp by working out the scores.

# Puzzle 2 – Summer Holiday Packing



Iona has packed 3 different t-shirts, 3 different pairs of shoes and 3 different pairs of leggings in her rucksack. How many different outfits can she make?

Can you explain how you worked it out?

# Puzzle 3 – Puzzle Book

$$3 \text{ (soccer players)} = 45$$

$$2 \text{ (pairs of shoes)} + 1 \text{ (pair of shoes)} \times 1 \text{ (soccer player)} = ?$$

$$2 \text{ (referees)} + 1 \text{ (soccer player)} = 33$$

$$1 \text{ (referee)} + 2 \text{ (pairs of shoes)} = 25$$

Iona and Harris cannot agree on the correct answer to the puzzle. Iona thinks it is 68 but Harris does not. What do you think is the correct answer? Can you explain this for Iona and Harris?

Could you and some family members attempt this individually and compare answers?

Are all the answers the same?

If not, discuss your thinking and listen to the explanation of others, who is right and why?

# Puzzle 4 – Scotland Team Activity



**Shannon Lynn**

**Goalkeeper**

**Club:**  
Vittsjo GIK

**Age – 33**  
**Caps – 30**  
**Clean Sheets – 8**



**Jenna Fife**

**Goalkeeper**

**Club:**  
Hibernian

**Age – 23**  
**Caps – 4**  
**Clean Sheets – 2**



**Lee Alexander**

**Goalkeeper**

**Club:**  
Glasgow City

**Age – 27**  
**Caps – 16**  
**Clean Sheets – 1**



**Jennifer Beattie**

**Defender**

**Club:**  
Manchester City

**Age – 27**  
**Caps – 123**  
**Goals – 22**



**Kirsty Smith**

**Defender**

**Club:**  
Manchester Utd

**Age – 25**  
**Caps – 34**  
**Goals – 0**



**Rachel Corsie**

**Defender**

**Club:**  
Utah Royals

**Age – 29**  
**Caps – 108**  
**Goals – 16**



**Chloe Arthur**

**Defender**

**Club:**  
Birmingham City

**Age – 24**  
**Caps – 19**  
**Goals – 0**



**Sophie Howard**

**Defender**

**Club:**  
Reading

**Age – 25**  
**Caps – 13**  
**Goals – 0**



**Joelle Murray**

**Defender**

**Club:**  
Hibernian

**Age – 32**  
**Caps – 48**  
**Goals – 1**



**Hayley Lauder**

**Defender**

**Club:**  
Glasgow City

**Age – 28**  
**Caps – 98**  
**Goals – 9**



**Leanne Crichton**

**Midfielder**

**Club:**  
Glasgow City

**Age – 31**  
**Caps – 64**  
**Goals – 3**



**Caroline Weir**

**Midfielder**

**Club:**  
Manchester City

**Age – 23**  
**Caps – 62**  
**Goals – 7**

# Puzzle 4 – Scotland Team Activity



**Joanne Love**  
Midfielder  
Club:  
Glasgow City

Age – 33  
Caps – 191  
Goals – 13



**Kim Little**  
Midfielder  
Club:  
Arsenal L.F.C

Age – 28  
Caps – 132  
Goals – 53



**Christie Murray**  
Midfielder  
Club:  
Liverpool L.F.C.

Age – 28  
Caps – 60  
Goals – 4



**Lizzie Arnot**  
Midfielder  
Club:  
Manchester Utd

Age – 23  
Caps – 25  
Goals – 2



**Nicola Docherty**  
Midfielder  
Club:  
Glasgow City

Age – 26  
Caps – 18  
Goals – 0



**Claire Emslie**  
Forward  
Club:  
Manchester City

Age – 25  
Caps – 20  
Goals – 3




**Jane Ross**  
Forward  
Club:  
West Ham

Age – 29  
Caps – 126  
Goals – 58




**Lisa Evans**  
Forward  
Club:  
Arsenal L.F.C

Age – 26  
Caps – 77  
Goals – 17




**Fiona Brown**  
Forward  
Club:  
FC Rosengard

Age – 24  
Caps – 37  
Goals – 2



**Lana Clelland**  
Forward  
Club:  
Fiorentina

Age – 26  
Caps – 24  
Goals – 3



**Erin Cuthbert**  
Forward  
Club:  
Chelsea

Age – 20  
Caps – 29  
Goals – 9



# Puzzle 4 – Scotland Team Activity

The family are talking about their favourite players from the Scottish Women's Football Team World Cup 2019 squad. They have turned this into a guessing game and are giving each other clues to help them find the player. Can you find the name of each family member's favourite player?

## Mum

- she plays for a Scottish team
- her caps and age are both even numbers
- her goals scored is  $3^2$

Who could it be?

## Harris

- her goals scored total is a prime number
- she is a Forward
- the total of her age, caps and goals scored is a multiple of 10

Who could it be?

## Iona

- her age is  $\frac{1}{4}$  of 100
- she has not yet scored any goals
- her number of caps can be divided equally by 1 and 2

Who could it be?

## Dad

- the total of all three statistics is even
- she is in her 20s
- she has one clean sheet

Who could it be?

Can you create a set of clues about your favourite player for a friend to solve?



# Puzzle 5 – Shape Task

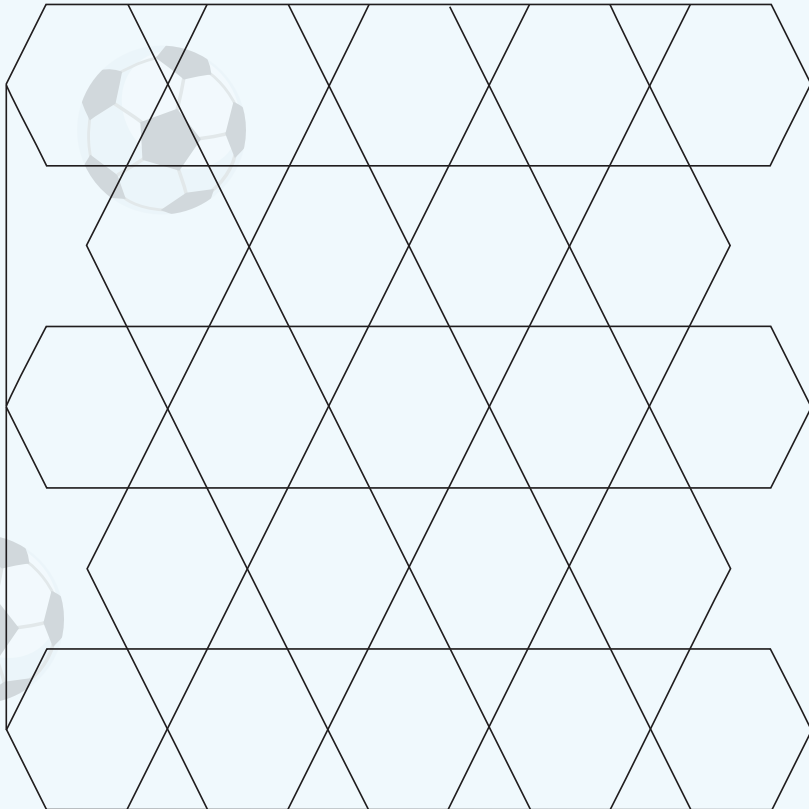
How many triangles can you see?

Iona and Harris are looking for another puzzle in their book. Iona loves shape puzzles.

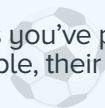


Harris thinks the answer to the question is 26 but Iona thinks Harris is wrong. Who is right and why?

When looking for triangles, Harris spotted lots of other shapes. How many different shapes can you find? Look carefully, not all shapes are obvious at first glance!



The puzzle contains more shapes than triangles as you've probably noticed – what do you know about these shapes – for example, their names, how many lines they have, are they symmetrical? What else?



# Issued to Primary 6 pupils in Scotland for Summer holiday maths family fun.

Developed in partnership between the **Scottish Government** and **The Scottish Mathematical Council**.

We will be publishing the solutions and workings on our Making Maths Count blog ([blogs.gov.scot/making-maths-count](https://blogs.gov.scot/making-maths-count)) from 27 July 2019.

## Parents and carers

Please check out Parentzone Scotland  
[www.education.gov.scot/parentzone](https://www.education.gov.scot/parentzone)

and

Parent Club [www.parentclub.scot](https://www.parentclub.scot) for  
more ways to enjoy numeracy and maths.



## What you can do as a parent or carer

- Play board games! Games can involve a lot of maths: this could be counting squares, looking for sequences, moving in different directions, exploring probability by rolling dice or being dealt a card, and following logic and rules.
- Play puzzles and puzzle-like games. Examples include Noughts and Crosses, Guess Who?, Sudoku, Dominoes, Battleships, Dots-and-Boxes and Chess. These involve strategic thinking, problem solving, and planning, as well as lots of the skills mentioned above.
- Include children in activities that use maths. For instance cooking often asks for lots of quantities and measuring as well as shapes, times and temperatures. Shopping involves prices, counting money, and checking the time.
- Estimate all sorts of things together: “I wonder how many steps there are here?”
- Plan journeys together, look at maps, timetables, and talk about distances.
- Talk about maths in a positive way, that way your child will too!

