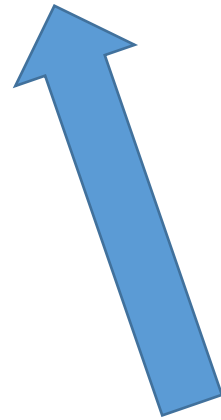


Year 4 Maths, 5/2/21

An investigation into **palindromic** numbers



Don't worry if you don't know what this word means yet!

Did you notice anything interesting about the date on Monday this week?

Monday the 1st of
February 2021

1 / 2 / 21

day month year

The diagram illustrates the date 1/2/21 in red. Three blue arrows point from the labels 'day', 'month', and 'year' below to the corresponding parts of the date: '1' for day, '2' for month, and '21' for year.

Monday's short date is an example of a **palindrome**.

Palindrome (noun): a word or number that can be read the same forwards and backwards.



If we read the sequence of numbers from left to right, it goes 1, 2, 2, 1

1 / 2 / 21

If we read the sequence of numbers from right to left, it goes 1, 2, 2, 1 – it's the same!



Here are some more examples of palindromes:

WORDS:

mum

dad

rotor

radar

minim

sagas

madam

level

PHRASES:

nurses run

race car

A Toyota's a Toyota

yo banana boy

a car, a man, a maraca

NUMBERS:

1551

345543

2002

106601

We're going to investigate palindromic dates.

There is another way of writing the date:

dd/mm/yyyy

This way always has eight digits. The first two digits are the day, the next two are the month and the next four are the year.

Can you write today's date in this format?

Today's date is:

05/02/2021

This is not a palindrome, because it doesn't read the same forwards and backwards.

What about Monday's date written in this way?

01/02/2021

01022021



01/02/2021



12022010

When we write Monday's date this way, it **isn't** a palindrome.

From now on in this lesson, we're going to use this way of writing the date with 8 digits.

Can you work out the next date that will be a palindrome?

The answer's on the next page, so don't move on until you've investigated!

- The next palindromic date will be on the 12th of February – that's Friday next week!

12/02/2021

Can you explain why this number is a palindrome? Tell someone at home or at school.

Did you work it out by yourself? Can you explain how you did it?

An example is on the next page.

An example explanation:

I wanted to find the soonest palindromic date, so I began just by looking at the year 2021. I read from right to left and got the digits 1, 2, 0, 2.

So I tried putting those digits as the first four digits from left to right. I got 12/02/2021, which is a real date.



--/--/2021

Your task today is to investigate: **can you work out the next 10 palindromic dates?**

You will need to know how many days are in each month to find dates that work.

Number of days
in every month

January: 31

February: 28

March: 31

April: 30

May: 31

June: 30

July: 31

August: 31

September: 30

October: 31

December: 31

31

Extension: how many palindromic dates have there been in the last 20 years?

Hints and tips

DD/MM/YYYY

The diagram shows the date format 'DD/MM/YYYY' in a large, bold, black font. Each part of the format is enclosed in a thin blue rectangular box: 'DD' in the first box, 'MM' in the second, and 'YYYY' in the third. Blue arrows point from the explanatory text blocks below to these boxes: one from the left block to the 'DD' box, one from the bottom block to the 'MM' box, and one from the right block to the 'YYYY' box.

These digits can't be more than 31, as no month has more than 31 days.

These digits can't be more than 12, as there are only 12 months in a year.

It would be a good idea to start with these four digits and work backwards. We want to know the **next** palindromic date after this one, so try starting with next year and see if that works as a palindrome.

Answers

The next 10
palindromic dates.

12/02/2021

22/02/2022

03/02/2030

13/02/2031

23/02/2032

04/02/2040

14/02/2041

24/02/2042

05/02/2050

15/02/2051

25/02/2052

Extension:

These are the palindromic
dates from the last 20 years.

02/02/2020

31/02/2013

21/02/2012

11/02/2011

01/02/2010

20/02/2002

10/02/2001