Xavi's T Shirt

Isabelle Simpson

Write down some prime numbers.

2 3 5 7 11 13

So what is special about the circles that are not split up in the top row?

They are prime numbers

Explain what is happening in the top row

Prime numbers are just one coulor six is red and gre[illegible]
red is [illegible] green is three two and three are factors of six. Eight
three sections of red because two times [illegible] two is eight [illegible]

What do you notice about the colours in the fifth column? All of them have yellow in them. Yellow is five so five is a factor of all of the numbers in that collum

What is happening in the far right column? all of them numbers have red and yellow in them so two and five are facters of all those numbers

Look at colours of circles (2 and 3)

What is special about the circled numbers that have these two numbers,

If a circle has got red and green two and three are facters of that number

On the bottom row 93, 94, 95 appear as three consecutive circles/ numbers, each split into two and no colour is repeated.

$93 = 3 \times 31$ three and thirty one are both prime numbers,

$94 = 2 \times 47$

$95 = 5 \times 19$

Can you find a similar set of four consecutive nos/circles where no colour is repeated? If not why not?

I dont ~~think~~ you could have four consecutive numbers because the fourth number ~~no~~ would be even like the second and have the factor to.

What other patterns can you see? Can you explain why they occur?

In the three column there are lots of prime numbers as well as the seven and nine column, Also most ~~all~~ of the prime numbers appear down the column their in the units have odd numbers ~~at the top~~. The only even prime number is true!

What is special about the circles/numbers that only have these two colours? (red and green)
If they have red or green they are answers in both the two and three times table

Why do multiples of 11 appear on a diagonal line?
11 22 33 44 55 66 77 88 99 121
The reason it goes diagonal is because the units digit goes up one each time. all the numbers have a change because 11 is a factor

Why do multiples of 9 appear on a diagonal line?
9 18 27 36 45 54 63 72 81 90 99 108 one
it goes diagonal because the units digit goes down/every time

Look at the circle that represents 8.
The three parts are all the same colour.
How many other circles / numbers will also be split into 3 identical colours?
8 27
8 = two times two times two two is red so you need three sections of red
27 = three times three times three three is green so you need three sections of green
(the next one would be 125) = 5×5×5

(a) contd. to j) red and yellow. red is two yellow
y five two and. five are factors of ten

Isabelle Simpson

Jessica

1. They are all prime numbers

3. They all have yellow in the circle which stands for the number 5.

4. They all have red and yellow in each circle - number 2 and 5.

9. 2 other circles - $3 \times 3 \times 3 = 27$
$4 \times 4 \times 4 = 64$ Cube number

11. The last collum has a circle with yellow and red in it. Each circle that has red in it is divisible by 2. Each circle with dark green in it is divisible by 3.

Red = 2

Green = 3

Yellow = 5

Blue = 7

Orange = 11

Purple = 13

Light Blue = 17

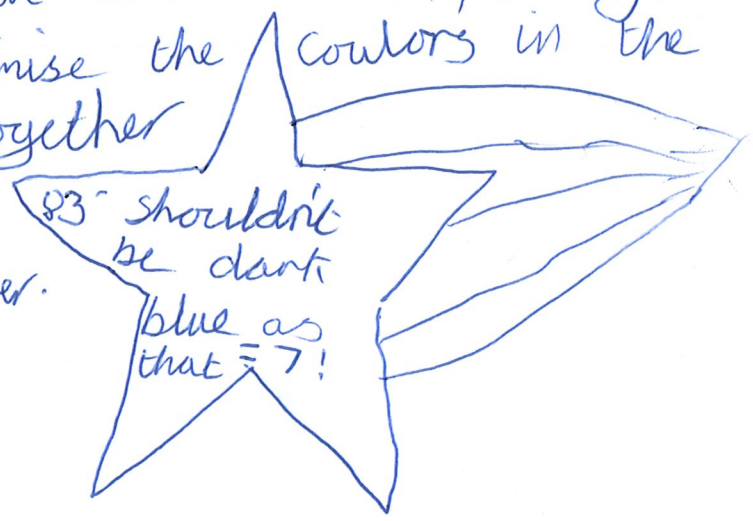
Light purple = 19

Light Green = 23

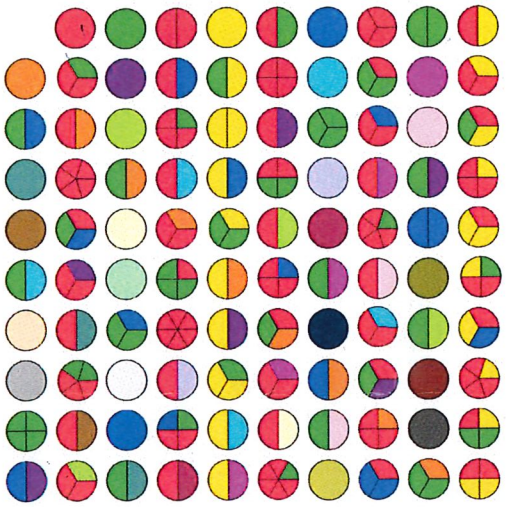
Light Pink = 29

Teal = 31

To work out the code you need to work out the numbers of the first 2 rows (full circle coulors), then you can timise the coulors in the circle together to get the answer.



Xavi's t-shirt: Key Stage 2 autumn half term challenge



Here is Xavi's t-shirt. Each circle represents a number between 2 and 100. The image on the right is a clearer version of the pattern.

What do you notice?

Here are some questions you may like to consider:

1. What is special about the circles that are not split up?
2. Can you explain what is happening in the top row?

3. What do you notice about the colours in the fifth column?
4. What is happening in the far right column?

Take a look at the colours of the first two circles (2 and 3).

5. What is special about the circles/numbers that have these two colours?
6. What is special about the circles/numbers that have *only* these two colours?

7. Why do multiples of 11 appear on a diagonal line?
8. Why do multiples of 9 appear on a diagonal line?

Look at the circle that represents 8. The three parts are all the same colour.

9. How many other circles/numbers will also be split into three identical colours?

On the bottom row, 93, 94 and 95 appear as three consecutive circles/numbers, each split into two, and no colour is repeated.

10. Can you find a similar set of four consecutive circles/numbers where no colour is repeated? If not, why not?

11. What other patterns can you see? Can you explain why they occur?

Have a go at these questions over half term, get the whole family involved and see if you can crack the code along with answering some of the questions above.

Bring them back into school for your teacher to enter into an online competition!

Have a great half term!

Miss Johnson and Mrs Lynn

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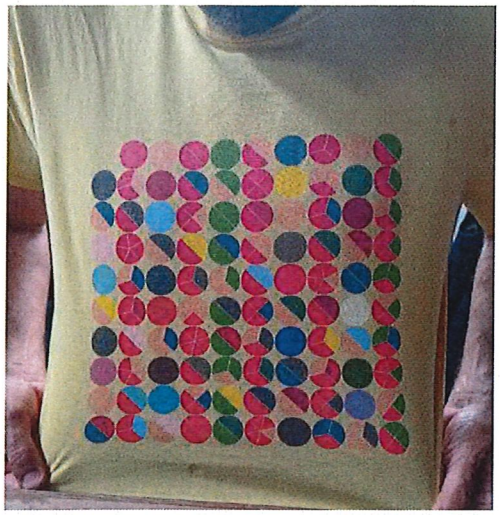

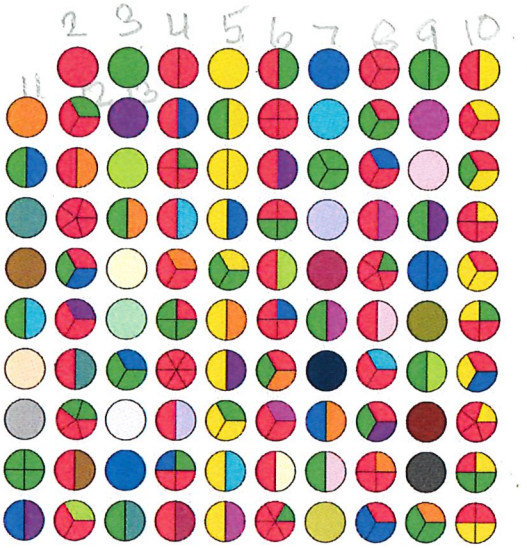

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What is special about the circles/numbers that have these two colours?
What is special about the circles/numbers that have *only* these two colours?

Why do multiples of 11 appear on a diagonal line?
Why do multiples of 9 appear on a diagonal line?

Look at the circle that represents 8. The three parts are all the same colour.
How many other circles/numbers will also be split into three identical colours?

On the bottom row, 93, 94 and 95 appear as three consecutive circles/numbers, each split into two, and no colour is repeated.
Can you find a similar set of four consecutive circles/numbers where no colour is repeated? If not, why not?

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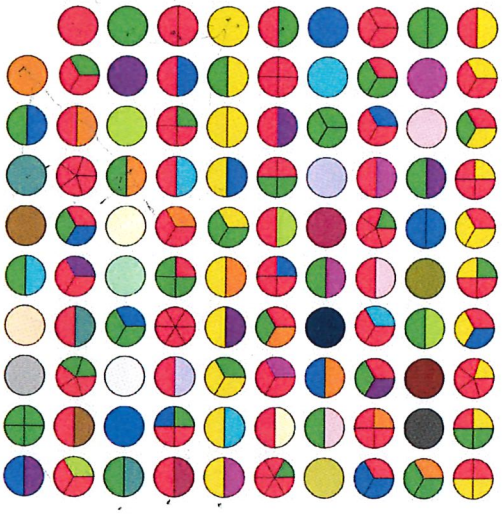

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there are any other numbers that isn't in they all contain times table (prime number) yellow = 5 yellow meaning

What do you notice about the colours in the fifth column?
What is happening in the far right column?

* Take a look at the colours of the first two circles (2 and 3).
What is special about the circles/numbers that have these two colours?
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there representing 2 and 3 and the thing that's special is that all multipels of 3 and 2

Why do multiples of 11 appear on a diagonal line? because it goes up 11 so it's moved
Why do multiples of 9 appear on a diagonal line? its the same as a but a goes backward

Look at the circle that represents 8. The three parts are all the same colour.
How many other circles/numbers will also be split into three identical colours?

2 as 5³ is 125

On the bottom row, 93, 94 and 95 appear as three consecutive circles/numbers, each split into two, and no colour is repeated.
Can you find a similar set of four consecutive circles/numbers where no colour is repeated? If not, why not?

no because 93 94, 95 aren't in the same times tables at all

What other patterns can you see? Can you explain why they occur?

33, 34, 35 are like 93, 94, 95 and the ~~reasons~~ same

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The pattern is that the lines are is it's timed bye anything.

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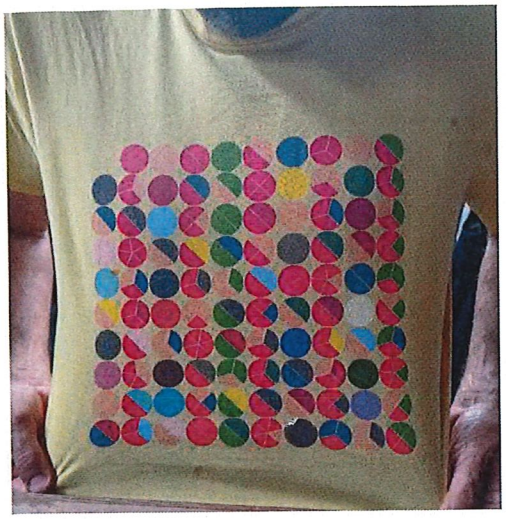

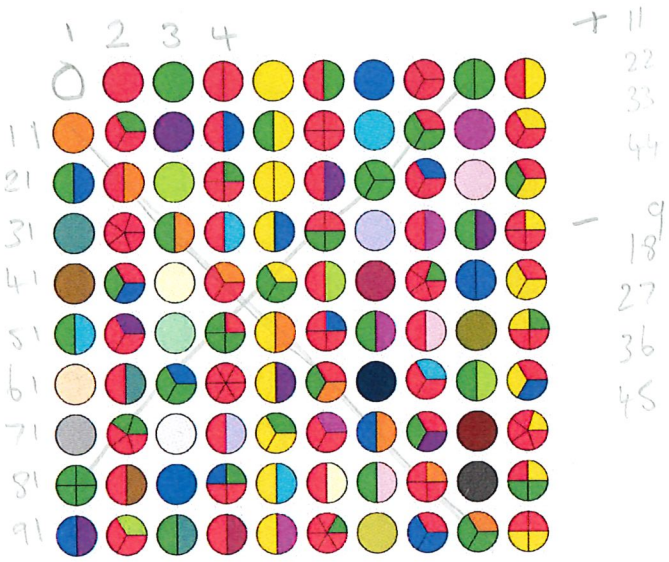

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