THIRD SPACE LEARNING

25 Topical Maths Problems Spring Term Suitable for Key Stage 2 New for 2020

25 real world maths investigations to practise reasoning and problem

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What can you do with a dream?

Martin Luther King Day
20th Jan 2020

Martin Luther King was a famous civil rights activist who led nonviolent protests to fight for the rights of all people, especially African Americans who were not treated in the same way as white Americans in the 1950s and 1960s. Martin Luther King made some famous speeches, perhaps most well know was his speech beginning "I have a dream..."

1. How many different words can you make using the letters D, R, E, A and M?

Play with a partner and see who can get the highest score using this scoring system:

Consonants = two tenths each
Vowels = one tenth each

E.g. dream has three consonants and two vowels

0.2 x 3 = 0.6 0.1 x 2 = 0.2 0.6 + 0.2 = 0.8 points for 'dream'

2. Louis scores six tenths for a four letter word. What could his word be? Can you make a generalisation about what kind of word it could

A Scottish Feast

Burns Night 25th January 2020

Burns night takes place in Scotland and beyond every year to celebrate the life and works of Scotland's favourite poet, Robert Burns, who was born on the 25th January 1759. A traditional celebration includes a piper and a haggis, which receives a formal toast before being eaten by the guests.

These are the ingredients for the Scottish delicacy, haggis:

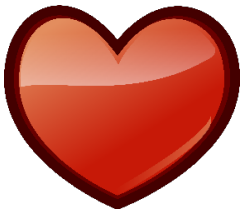
Serves 4:

Let the meat simmer for two hours

Sheep's stomach or ox secum
445g beef
1/2 a lamb heart
Four onions
225g oatmeal
3tbsp salt
1/4tsp black pepper
Enough water to simmer the haggis in

1. Alisdair is cooking Haggis for one. Write out a list of the ingredients he will need.

How your heart adds up



Heart Month February 2020

National Heart Month is the British Heart Foundation's annual campaign to increase awareness of heart disease. There is lots of maths involved when learning about the heart. Did you know, doctors will ask a patient to lie down if they want to slow their heart rate, but when a person has a fever their heart rate will increase without them doing any physical activity!

- The heart weighs between 200 and 425g.
- An adult heart beats 100,000 times a day.
- The heartrate of a newborn baby is 70-160 beats per minute.
- A woman's average heartbeat is faster than a man's by 8 beats per minute.
- A child's heart is the same size as their clenched fist.
- In an average lifetime, the human heart will beat more than 2.5 billion times.
- The heart pumps 380 litres of blood through your body every single hour.
- A kitchen tap would need to be turned on fully for 45 years to equal the amount of blood pumped by the heart in an average lifetime.
- When the body is at rest, it takes only 8 seconds for the blood to go from the heart to the brain and back.
- Every day your heart creates enough energy to drive a truck for 20 miles.

Use the information above to solve these problems:

1. A woman's average heart rate is 78 beats per minute. What is a man's average heart rate?
2. How much blood does your heart pump through your body in one week?
3. What is the average weight of an adult heart?
4. If you are 10 years old, how far could you have driven using the energy created by your heart?
5. Estimate how long it would take for your blood to go from your heart to your toes and back again.
6. Which child in your class do you think has the biggest/ smallest heart? Plan an investigation to find out if you are

What's my number?

NSPCC Number Day 7th Feb 2020

The National Society for Prevention of Cruelty to Children (NSPCC) holds their Number Day each year where schools all over the UK are invited to fundraise through maths. The NSPCC is a charity which works to ensure that every child and young person has a happy and safe childhood. One of their most important services is their Childline, which any child or young person can call for help or advice.

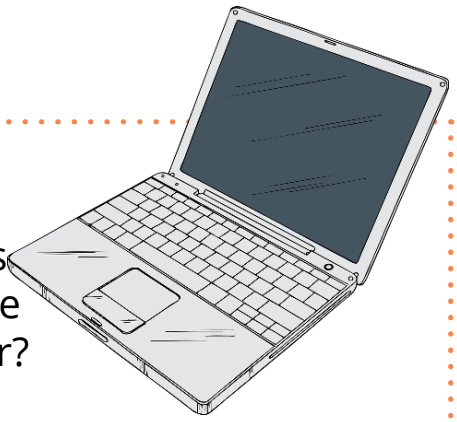
1. Can you use the clues to work out what NSPCC's Childline number is?

- There are eight digits in the phone number
- The sum of the last four digits is the square root of 16
- The product of the first and second digit is 0
- The sum of the first and second digit is a composite number between 6 and 9
- The third and fourth digits are the same as the first digit
- The difference between the first and fifth digit is 1
- Each of the last four digits has a value that is greater than 0

Safer Online

Safer Internet Day
11th Feb 2020

Global celebrations take place in February in aid of 'Safer Internet Day' which encourages the safe and positive use of digital technology by children and young people. This annual campaign raises awareness of key internet safety issues and lots of events take place each year.



1. The first tweet was done on 21st March, 2006 by Jack Dorsey. If the second tweet was done two weeks later, what date did the second ever tweet occur?

2. The first YouTube video uploaded was "Me at the zoo" by Jawed Karim at 8:27pm on 23rd April 2005. If the second YouTube video was uploaded one week and 40 minutes later, when was the second YouTube video uploaded?

3. The world record for the fastest time to log in to a Gmail account is 1.26 seconds. If the average login time in 2001 was 10 times slower than this record, what was the average login time in 2001?

4. If the 2020 Gmail login speed record were to be 100 times faster than the current world record, what will the 2020 Gmail login speed be?

Love Hearts

Valentine's Day 14th Feb 2020

Valentine's Day is celebrated every year on the 14th of February. Initially, this day commemorated the life of a Roman Priest called Saint Valentine who championed the idea of Christian marriage, even though standing up for this belief resulted in him being executed. Today, Valentine's Day is an opportunity to celebrate love and many people make cards for those closest to them.

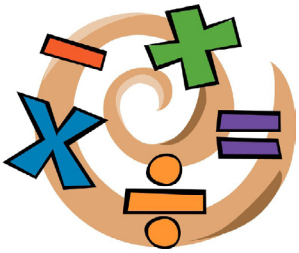
1. A mini pack of Love Hearts costs 12p. If there are 7 sweets in a pack, what is the cost of 1 sweet? Give your answer to one decimal place.
2. You can buy a box of 100 mini packs of Love Hearts for £8.55. How much cheaper is this than buying 100 individual packs?
3. Giant Love Hearts cost 35p per pack. If they are on offer at 4 for £1, how much money would you save if you bought one pack for each person in your class?
4. You have 88 Love Hearts and decide to share them with a friend. For every 5 Love Hearts you keep, you give 3 to your friend. How many Love Hearts do you give away in total?

The Language of Maths

International Mother Language Day
21st February 2020

International mother language promotes linguistic and cultural diversity. This activity encourages us to remember that maths is the most universal language, which is used and understood globally. Even when maths is approached using different methods, everyone will eventually arrive at the same answer.

Choose a vocabulary card and draw a picture or write a sum to illustrate it. Can your partner work out what the word is?



Horizontal	Factor	Regular
Circumference	Ratio	Vertical
Fraction	Radius	Mean
Irregular	Volume	Proportion
Opposite	Reflex angle	Diameter
Square number	Equivalent	Quadrilateral

Fairtrade Fractions

Fairtrade Fortnight 24th February – 8th March 2020

During Fairtrade Fortnight campaigners, businesses, schools and places of worship show their support for the farmers and workers who grow our food in developing countries. Buying Fairtrade produce ensures that those who grow the food get a fair wage for doing so. In 2015, 26% of all Fairtrade profits were put towards providing education for children in these countries.

1 in 3 bananas sold in the UK is Fairtrade. 231 bananas are eaten every second on average. How many of the bananas eaten in 1 hour in the UK are Fairtrade?

1. Coffee farmers receive £39 million in Fairtrade premium. If they spend one quarter of it on improving productivity and quality, how much do they spend?
2. In 2014, 185 million tons of Fairtrade coffee beans were certified organic. If this is $\frac{2}{5}$ of all Fairtrade coffee, how much Fairtrade coffee was produced?
3. Fairtrade chocolate accounts for 12% of total sales in the UK. If each person eats 11kg of chocolate per year, on average, how much would be Fairtrade?
4. 70% of the world's hand-stitched footballs are made at Fairtrade-certified factories in Sialkot, Pakistan. Each year 40 million footballs are made there. How many are made worldwide?
5. 6 in 10 people say they trust the Fairtrade mark. How many people would this be in your a) class b) school?

Fairtrade Countries

Fairtrade Fortnight
24th February – 8th March 2020

Fairtrade place a lot of the money they make back into the education system, in fact over a quarter of profits in 2015 went towards education. Also buying Fairtrade produce ensures that the people you buy from get paid fairly – otherwise sometimes farmers get very, very little for their produce. Does this seem very fair to you?

There are Fairtrade producers in 74 countries. Some of these include: Dominican Republic, Paraguay, Mexico, Ghana, Ethiopia, India, Sri Lanka and Vietnam.

1. Choose three of the 74 countries for today's work.
2. Find out which of your three countries has the largest population.
3. Find out which country has the smallest area.
4. Find each country on a map. Use the scale of the map to calculate how far each country is from the UK, travelling in a straight line. Give distances in both miles and kilometres.
5. If an aeroplane travels at 575 miles per hour, calculate how long it would take to travel from the UK to each country.

Pancake House

Shrove Tuesday 25th February 2020

Shrove Tuesday is the last day of feasting before Lent begins. Pancakes are traditionally eaten on this day as a way of using up any rich foods before fasting begins. But, of course, maths plays a big part in this special day – even if you didn't realise it! It would be extremely tricky to enjoy pancakes if we didn't have precise recipes to follow. Perhaps most importantly, it's vital we keep track of who in the family has eaten more pancakes than us!

Read the following information to help you answer question 1:

A pancake house made 264 pancakes on Shrove Tuesday.
Jack's family ate 2.5 times as many pancakes as Lara's family.
Ali's family ate $\frac{1}{8}$ of the total number of pancakes made.

Lara's family ate $\frac{2}{3}$ of the amount that Ali's family ate.

1. How many pancakes did Jack's family eat?
2. In Ali's family there are 5 people. Use these clues to work out how many pancakes each person ate.

Person 1 ate three times as many pancakes as person 3.
Person 2 ate the same number of pancakes as person 1.
Person 3 ate 2 fewer pancakes than person 5.
Person 4 ate 2 more pancakes than person 5.
Person 5 ate 5 pancakes.

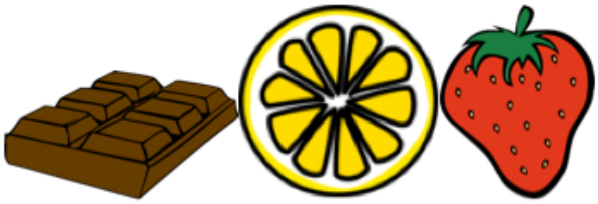
Pancake Toppings

Shrove Tuesday 25th February 2020

Shrove Tuesday is the last day of feasting before Lent begins. Pancakes are traditionally eaten on this day as a way of using up any rich foods before fasting begins. With such an array of toppings to choose from, let's analyse these from every possible angle!

A Pancake House offers 6 pancake sauces:

- Vanilla
- Strawberry
- Chocolate
- Toffee
- Lemon
- Maple



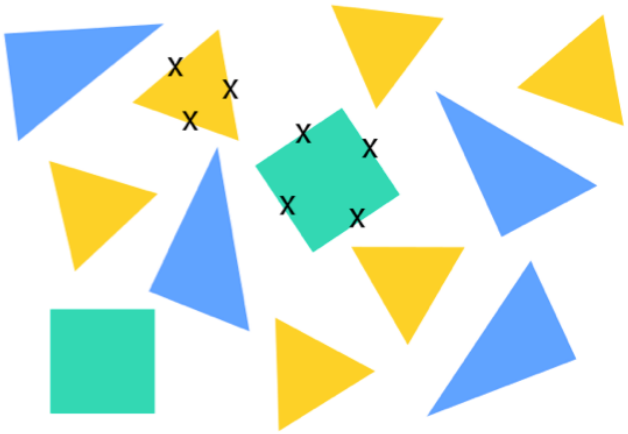
Billy wants to have 2 sauces on his pancakes. Investigate the different combinations of 2 sauces he could have.

Chocolate Shapes

Lent
26th February – 9th April 2020

Lent is the period of 40 days which comes before Easter in the Christian calendar. Christians who observe Lent usually make a commitment (a promise) to fast, or give up a bad habit. People often give up bad habits like watching too much tv, or unhealthy food and drink such as chocolate, coffee and cola.

Holly cannot eat any chocolates from her favourite selection box because she has given up chocolate for Lent. Instead of eating them, she decides to do an investigation.
These are the shapes of the chocolates she has in her box (sides marked x are the same length) and each colour represents a different shape.



Different shapes can be made by joining chocolates together.

1. How many different ways can you use the chocolates to make a rectangle?
2. Can you make a rhombus?
3. Can you make a parallelogram?
4. Can you make a regular hexagon?
5. How many different triangles can you make?

Coffee Calculations

Lent
26th February – 9th April 2020

Lent is the period of 40 days which comes before Easter in the Christian calendar. Christians who observe Lent usually make a commitment (a promise) to fast, or give up a bad habit. People often give up bad habits like watching too much tv, or unhealthy food and drink such as chocolate, coffee and cola.

- A UK coffee shops sell coffee for £2.75 per cup.
- A 200g jar of instant coffee costs £4.60.
- 1.8g makes 1 cup of coffee.

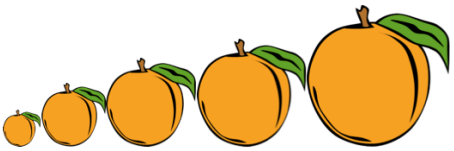
Each day, Mr Jackson drinks 3 cups of instant coffee at home, and twice a week he buys coffee from his local coffee shop.

How much money will he save if he gives up coffee for Lent? Round amounts of money to the nearest penny.

James and the Giant Peach

World Book Day
5th March 2020

World Book Day is an annual celebration of authors, illustrators, books and reading, which takes place in over 100 countries across the world. Did you know, one of the best-selling books of all time is Harry Potter and the Philosopher's Stone: 107 million copies were sold. Plus, if you read for 30 minutes a day, in one year you will have seen way over a million words!



1. Guess the number of words in the first chapter.
2. If the peach doubles in size every 20 seconds, how much would it weigh after 2 minutes?
3. Estimate how long it would take to eat this giant peach.
4. If an average peach contains 165mg of potassium, how much potassium would be in this giant peach?
5. It takes 36 seconds for James to remove three of the centipede's boots. How long would it take for James to remove all the centipede's boots? Give your answer in minutes.

A World Full of Words

World Book Day
5th March 2020

C.S. Lewis wrote the magical and amazing 'The Lion, The Witch and The Wardrobe', you might have even seen the film. Even though you might not think there is a lot of maths in books - you'd be surprised! So let's investigate the words of Mr Lewis with a maths twist.

Have a look at this extract from The Lion, The Witch and The Wardrobe:

Lucy felt a little frightened, but she felt very inquisitive and excited as well. She looked back over her shoulder and there, between the dark tree trunks; she could still see the open doorway of the wardrobe and even catch a glimpse of the empty room from which she had set out. (She had, of course, left the door open, for she knew that it is a very silly thing to shut oneself into a wardrobe.) It seemed to be still daylight there. "I can always get back if anything goes wrong," thought Lucy. She began to walk forward, crunch-crunch over the snow and through the wood towards the other light. In about ten minutes she reached it and found it was a lamp-post. As she stood looking at it, wondering why there was a lamp-post in the middle of a wood and wondering what to do next, she heard a pitter patter of feet coming towards her. And soon after that a very strange person stepped out from among the trees into the light of the lamp-post.

1. Investigate how many of each letter of the alphabet there is in the extract.
2. Choose your favourite part of your favourite book and do the same. Make sure the extract has 178 words 'to make your investigation fair and equal. What are the similarities/ differences? What are the most popular letters/ least popular letters.
3. Look into other details such as different types of punctuation and different word classes.

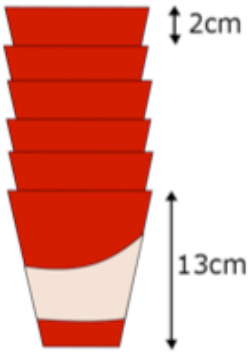
The World 'Cup'

World Maths Day
4th March 2020

World Maths Day is one of the world's largest global educational events aimed at lifting numeracy standards in a fun and meaningful way. Maths is everywhere, even if you can't always see it. Sometimes, the answers aren't always obvious, and it takes some thought to work it out.

When you order food, sometimes the drinks come in disposable cups, like these. The clever thing about these cups is that they are stackable, which saves space when the cups are produced, delivered and stored.

Have a look at the diagram to the right:



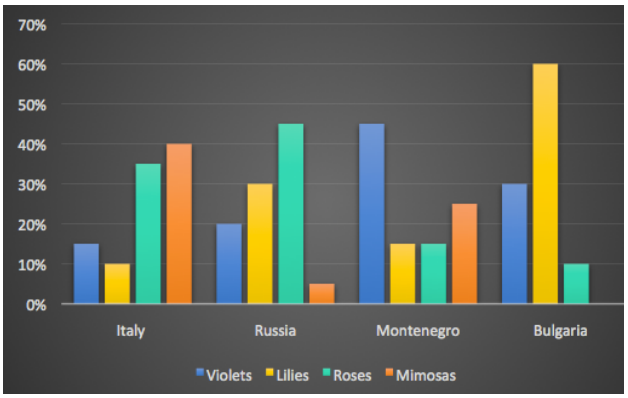
1. Can you work out how tall a stack of 20 cups would be? Give your answer in centimetres.
2. How tall would a stack of 523 cups be? Give your answer in metres.
3. To fit in the boxes for delivery, the stack of cups needs to be 75cm tall. How many cups is this?
4. In one box, there can be 36 stacks. What is the total number of cups that can fit in one box?
5. In a delivery van there are 129 boxes. The drives drops off 38 boxes at point 1 and 16 boxes at point 2, how many boxes does he have left?
6. Can you write an equation which will tell you how tall any number of cups will be? You can use C to represent the number of cups and H to show the height.

Flower Fever

International Women's Day 8th March 2019

International Women's Day recognises the achievements of women across platforms such as politics, culture and economics. It aims to ensure that the future is equal and safe for women worldwide. This day has much historical significance. One of many traditions associated with IWD is the giving of flowers. In lots of countries it is traditional for men to buy flowers for important women in their lives.

The following graph shows the results of a questionnaire which was completed at florists in four different countries (Italy, Russia, Montenegro and Bulgaria). The florists each kept track 200 customers who bought flowers for IWD. There is a colour coded key referring to each type of flower. Have a look at the graph and answer the questions that follow:



1. Which was the most popular flower in Russia?
2. Which was the least popular flower in Bulgaria?
3. How many customers chose roses in Italy?
4. How many customers chose both lilies and roses in Montenegro?
5. List the countries in order of how popular mimosas were. Write these from most popular to least popular.
6. What is the mean percentage of customers who chose roses?
7. How many more customers chose lilies in Bulgaria compared to Montenegro?
8. If the results for Bulgaria were shown on a pie chart, what size would the angle need to be to represent violets? (Hint: there is a total of 360o in a pie chart.)

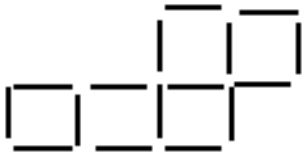
Matchstick Maths

British Science Week 6th –15th March 2020

Each year British Science Week encourages young people to think about the science all around us.
From seasons and climate to materials and energy.
transformation is a key part of what we can all observe in science.
These activities look at how new shapes and meanings can be created through small changes.

1. Move 3 matchsticks to change 3 equilateral triangles into 4 equilateral triangles.

2. Move 2 matchsticks to change 5 identical squares into 4 identical squares.



3. Make 5 triangles from 9 matchsticks.

4. Move 1 matchstick to make this calculation, written in Roman numerals, correct.

5. Move 3 matchsticks to make 3 rhombuses.

6. Add 5 matchsticks to create 8 triangles.

Medicine Madness

British Science Week 6th –15th March 2020

Each year British Science Week encourages young people to think about the science all around us. From seasons and climate to materials and energy transformation is a key part of what we can all observe in science. Roald Dahl's famous book, George's Marvellous Medicine is about how a young boy experiments with a strange concoction of ingredients which cause weird and hilarious changes to his grandmother.

It took him a while, but George finally perfected his marvellous medicine. The recipe for 3 people is shown below. It is flying off the shelves in the supermarkets, and George has lots of requests to make more. Carefully read the ingredients for the recipe, and answer the questions that follow.

Medicine for 3 people:

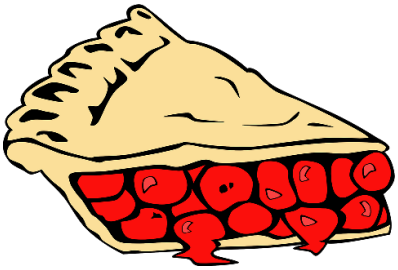
- 27g of curry powder
- 18g of mustard powder
- 90ml of 'extra hot' chilli sauce
- 15 black peppercorns
- 600 gigantic purple pills
- 48 pale green pills
- 3 tablespoons of shaving-cream
- 4.5 tins of dark brown gloss paint

1. George needs to make a batch for 9 people. How much shaving-cream should he use?
2. A customer needs a small batch of medicine, enough for 1 person. How many peppercorns should he add?
3. A friend would like George to create a batch for 4 people. How much curry powder should he include?
4. George charges £13.65 for the 3-person batch. How much should he charge for the 4-person batch?
5. Curry powder comes in tins of 297g. How many batches of medicine (for 3 people) can George make with one tin?
6. George has a request for a 36-person batch. The pale green pills come in bottles of 570. Will one bottle of pills be enough to make the entire batch? Explain your answer.

A Slice of Pi

Pi Day
14th March 2019

Pi is a number represented by the Greek letter π. It describes the ratio between the circumference of a circle (the distance all around it) and its diameter (the distance from one side to the other, through the centre). Pi multiplied by the diameter gives the circumference of any circle. The diameter of a circle will fit around it just over three times - you can try this out for yourself using a piece of string.



Here are the first 100 digits of Pi:

3.14159265358979323846264338327950288419716939937510582097494459230781640628620899862803482534211706 79

1. Draw a tally chart to work out the frequency of the different digits. Write down the frequencies as fractions, decimals and percentages.

2. How many digits of Pi can you memorise in five minutes? Try to think of an interesting way to help you remember as many digits as possible.

Money Maths

Red Nose Day There isn't one in 2020! The next one will be in March 2021!

Red Nose Day started in 1988. It's the day, every two years, when people across the land can get together and do something funny for money at home, school and work. Comic Relief spends the money raised by Red Nose Day to help people living tough lives across the UK and Africa.

1. There have been 15 Red Nose Days. If each Red Nose Day raised the same amount, how much did each one raise?

2. If 75 countries have benefited from the money raised, how much did each one receive, on average?

5. The first red nose day raised £15,000,000. What fraction of the total amount raised is this?

Since it began Red Nose Day has raised approximately £900 million

4. In 2013 Red Nose Day raised £100,331,808. How much more money was raised in the other 14 Red Nose Days?

3. If $\frac{2}{5}$ of the total amount raised has gone to the UK, how much money has the UK received?

Danceathon

Comic Relief - This year it's Sport Relief!

Red Nose Day started in 1988. It's the day, every two years, when people across the land can get together and do something funny for money at home, school and work. People do lots of unusual things to raise money for charity: from burger eating competitions, to bathing in baked beans!

Comic Relief spends the money raised by Red Nose Day to help people living tough lives across the UK and Africa. In 2015 Dermot O'Leary raised £1 million for Red Nose Day by dancing for 24 hours.

1. How much did he raise every hour, to the nearest £?
2. How much did he raise every minute?
3. How much did he raise every second, to the nearest penny?

Creating Colour

Holi
9h March 2020

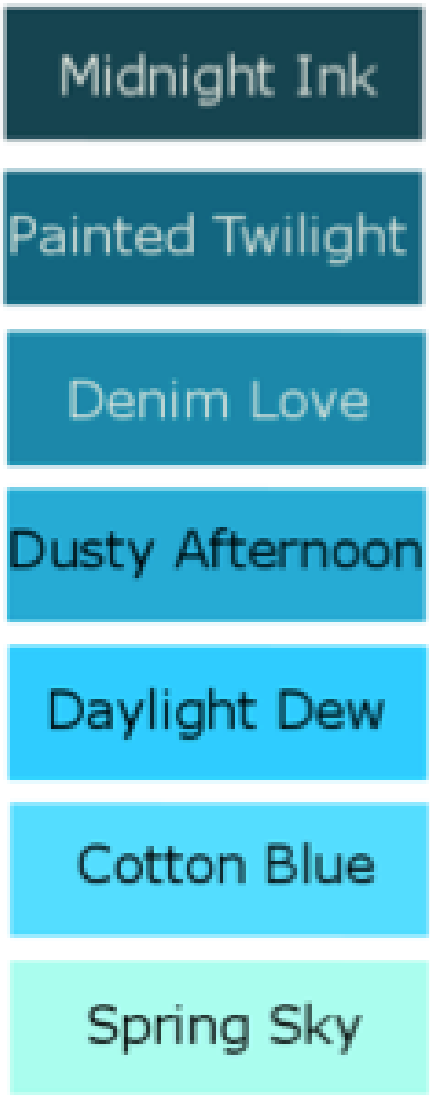
Holi is a Hindu festival that marks the arrival of spring. It is known widely as the Festival of Colour and it takes place over two days. Often, the celebrations involve throwing powdered paint at each other on the streets! Colour is all around us, but have you ever noticed how many shades of paint there are in a DIY store? Isn't it cool to think that all the colours in the world are just a mix of the three primary colours?

Have a look at the colour chart to the right:

1. What do you notice about the colours on this chart?
2. How do you think they were made?
3. Create your own paint colour chart for your favourite colour. You can even name each shade if you are feeling creative. For each new colour you create, record the ratio and proportion of the colours you used to make it. e.g.

Sunburnt Evening

3 red : 2 yellow : 1 white
– red – yellow – white



Spring Has Sprung

Spring Equinox 20th March 2020

The word 'equinox' comes from two Latin words that mean 'equal' and 'night'. This is because the hours of daylight and night are roughly the same at the equinox. Think about the hours of daylight you will have had today – will it be about 12 hours? It should be!

At the Equinox, approximately 12 hour are daylight and 12 hours are night.

1. How many different ways can you find to write values that are the same as 12 out of 24? Try to find at least six different ways including as different fractions, as a decimal and as a percentage.

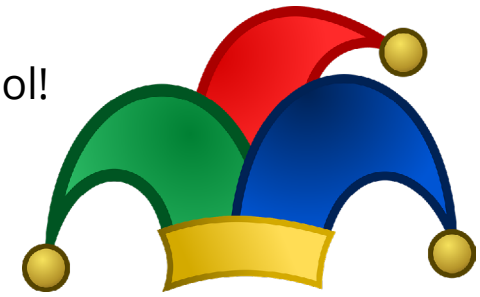
2. If exactly half the day is daylight and half is night, how many hours are there be in each period of time? How many minutes? How many seconds?

Don't be a fool!

April Fool's Day
1st April 2020

April Fool's Day is celebrated every year on 1st April by playing practical jokes and spreading hoxes. The jokes and their victims are called April Fools. People playing April Fool jokes expose their prank by shouting, 'April Fool!'. Some newspapers report fake stories which are usually explained the next day or below the news section in small letters.

1. Work out this riddle and prove you're not an April Fool!



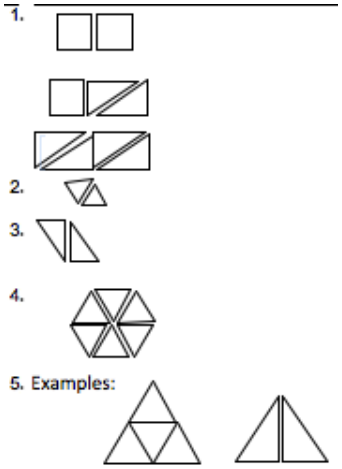
- I'm thinking of a 5-digit number which has no zeros and no digit is the same.
- The ten thousand digit is the cube root of the ones digit.
- The tens digit is the square root of the thousands digit.
- The hundreds digit is the product of the ten thousand digit and the tens digit.
- The thousand digit is an odd square number.

2. Can you create a riddle for your own 5-digit number?

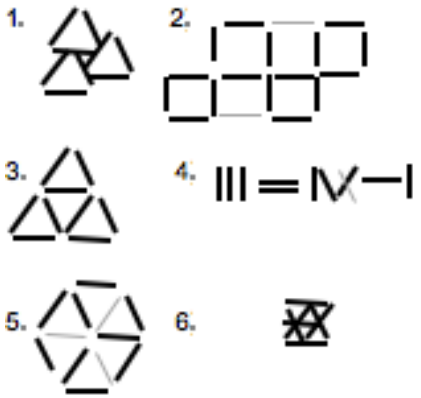
Event	Date	Problem	Content Domain Ref	Answers
Martin Luther King Day	20th January	What can you do with a dream?	3C6 4C6a 3F1a 5F6a 5F8	1. 1. made(0.6), red(0.5), read(0.6), are(0.4), ear(0.4), dear(0.6), am(0.3), dare(0.6), dame(0.6), mare(0.6), deer(0.6), era(0.4), dram(0.7) 2. It could be any four letter word with two consonants and two vowels (e.g. reed).
Burns Night	25th January	A Scottish Feast	3C6 3F1b 4F10a 5F10 6C7c 6F5b	1. • ¼ of sheep's stomach/ox secum • 111.25g beef • 1/8 of lamb heart • 1 onion • 56.25g oatmeal • ¾ teaspoon of salt • 1⁄16 teaspoon black pepper
Heart Month	February	How Your Heart Adds Up	5C1 5C6b 5C7a 5C8b 6C8 6M5	1. 78 - 8 = 70 beats per minute 2. 380 x 24 x 7 = 63,840 litres 3. (200 + 425) ÷ 2 = 312.5g 4. 365 x 20 x 10 = 73,000 miles (ignoring leap years) 5. Encourage children to develop their own strategies to estimate the time taken, e.g. measure the approximate distance from their heart to their brain and their heart to their toes and use these to calculate how much longer it would take the blood to get to their toes. 6. Encourage children to develop their own methods of

Event	Date	Problem	Content	Answers
NSPCC Number Day	7th February	What's my number?	3C6 4C6b 5C5b 5C5d 6C5	1. 0800 1111
Safer Internet Day	11th February	Safer Online	3M4e 4M4c 5C6b 3M4e 4M4c 5C6b	1. 4th April 2. 30th April, 9:07 p.m. 3. 12.6 seconds 4. 0.0126 seconds
Valentine's Day	14th February	Love Hearts	5M9a 6C8	1. 12p ÷ 7 = 1.7p (based on 7 sweets in a pack) 2. £12 - £8.55 = £3.45 3. If there are 30 children in the class: 30 x 35p = £10.50 £7 for 28 packs on offer + (2x35p) = £7.70 £10.50 - £7.70 = £2.80 4. 5 + 3 = 8 88 ÷ 8 = 11 11 x 3 = 33 sweets

Event	Date	Problem	Content Domain Ref	Answers
International Mother Language Day	21st February	The Language of Maths	N/A	N/A
Fairtrade Fortnight	24th February – 8th March	Fairtrade Fractions	4F10b	1. £39 million ÷ 4 = £9.75 million 2. 185 million ÷ 2 = 92.5 million 92.5 x 5 = 462.5 million tonnes 3. 10% of 11kg = 1.1kg 1% of 11kg = 0.11kg 12% of 11kg = 1.1 + 0.11 + 0.11 = 1.32kg 4. 10% = 5.714 million 5.714 x 10 = 57.14 million 5. Answers depend on class/ school size
Fairtrade Fortnight	24th February – 8th March	Fairtrade Countries	5M9b 6N2 6M5 6M6	Answers will vary depending on countries chosen and maps used.

Event	Date	Problem	Content	Answers
Shrove Tuesday	25th February	Pancake House	4F10a 5F10 5C8b	1. Ali's family ate 1/8 of 264 = 33 pancakes Lara's family ate 2/3 of 33 = 22 pancakes So Jack's family ate 22 x 2.5 = 55 pancakes 2. Person 1 ate 9 pancakes Person 2 ate 9 pancakes Person 3 ate 3 pancakes Person 4 ate 7 pancakes Person 5 ate 5 pancakes
Shrove Tuesday	25th February	Pancake Toppings	6A5	There are 15 combinations: S + C C + T T + M S + T C + L T + V S + L C + M L + M S + M C + V L + V S + V T + L M + V
Lent	26th February - 9th April	Chocolate Shapes	5G2b 6G2a	

Event	Date	Problem	Content Domain Ref	Answers
Lent	26th February - 9th April	Coffee Calculations	5M9a 5M9c 6C8 6F9b 6F9c 6F10	Lent is 40 days = 5.7 weeks (may wish to round to 6 weeks). Instant coffee: 200g ÷ 1.8g = 111 cups per jar Mr Jackson drinks 40 x 3 = 120 cups of instant coffee during Lent = 1 full jar @ £4.60 + 9 cups from a new jar: £4.60 ÷ 111 = 4p per cup 4p x 9 = 36p Total for coffee at home: £4.60 + 36p = £4.96 Coffee shop: 2 x £2.75 = £5.50 £5.50 x 5.7 weeks (or 6 if rounding) = £31.35 (or £33) Total spend = £4.96 + £31.35 (or £33) = £36.31 (or £37.96)
World Book Day	5th March	James and the Giant Peach	3M4f 5M9c 6C8	1. Allow answers that have used any logical approach. For example, take the average number of words in the first 5 lines of the chapter and use it to work out the number of words on a page. Multiply up to work out the approximate number of words in the whole chapter. 2. If the peach weighs 150g: 150 x 2 x 2 x 2 x 2 x 2 x 2 = 9,600g = 9.6kg 3. Allow answers that have used any logical approach. For example, time how long it takes to eat a normal sized peach and multiply up to estimate for the giant peach. 4. 9,600g ÷ 150 = 64, 64 x 165g = 10,560mg 5. It takes 36 seconds for three boots, so it would take 12 seconds per boot. Multiply by 100 (the number of legs a centipede has) to get 1200 seconds. To convert this to
World Book Day	5th March	A World Full of Words	C1 C2 P1 S1	1. A 53, B 9, C 17, D 36, E 95, F 19, G 19, H 53, I 36, J 0, K 8, L 30, M 13, N 43, O 65, P 15, Q 1, R 45, S 43, T 81, U 18, V 7, W 22, X 2, Y 12, Z 0 2. & 3. Answers will vary depending on what they choose.

Event	Date	Problem	Content Domain Ref	Answers
World Maths Day	4th March	The World 'Cup'	5C6a 3M1a 5m5 A2	Answer to question in blurb: When it is 9am, add 5 hours to it and you will get 2pm. 1. 20 x 2 + 11 = 51cm 2. 523 x 2 + 11 = 1057cm = 10.57m 3. 75 – 11 ÷ 2 = 32 cups 4. 36 x 32 = 1152 cups 5. 129 – (38 + 16) = 74 boxes
International Women's Day	8th March	Flower Fever	F12 R1 R2 S1 S2 S3	1. Roses 2. Mimosas 3. 35% of 200 customers = 70 4. 15 + 15 = 30% of 200 customers = 60 5. Italy, Montenegro, Russia, Bulgaria 6. 35% + 45% + 15% + 10% = 105 ÷ 4 = 26.25% 7. 60% - 30% = 30% 30% of 200 = 60 8. 30% of 360o = 108o
British Science Week	6th – 15th March	Matchstick Maths	5N3b 6G2a	

Event	Date	Problem	Content Domain Ref	Answers
British Science Week	6th – 15th March	Medicine Madness	M1 5C8b 5C8b	1. 3 x 3 = 9 tbsp 2. 15 ÷ 3 = 5 peppercorns 3. 27 ÷ 3 = 9 9 x 4 = 36g 4. £13.65 ÷ 3 = £4.55 £4.55 x 4 = £18.20 5. 297g ÷ 27g = 11 batches 6. 3 people : 48 pills 36 people : 576 pills So not enough in the bottle.
Pi Day	14th March	A Slice of Pi	3S1 3S2 4S2 5F6a 5F11 5F12 5S1 6F11	
Red Nose Day	The next one will be in March 2021	Money Maths	4F9 4M9 6C8	1. £900m ÷ 15 = £6m 2. £900m ÷ 75 = £1.2mil per country on average 3. £900m ÷ 5 = £180m (one fifth) £180m x 2 = £360m (two fifths) 4. £900m - £100,331,808 = £799,668,192.00 raised in 14 other RNDs.

Digit	Frequency	Fraction	Decimal	Percentage
0	8	8/100	0.08	8%
1	8	8/100	0.08	8%
2	12	12/100	0.12	12%
3	12	12/100	0.12	12%
4	10	10/100 or 1/10	0.1	10%
5	8	8/100	0.08	8%
6	9	9/100	0.09	9%
7	8	8/100	0.08	8%
8	12	12/100	0.12	12%
9	13	13/100	0.13	13%

Event	Date	Problem	Content Domain Ref	Answers
Comic Relief	This year it's Sport Relief!	Danceathon	5M4 6F9c 6F10	1. £1,000,000 ÷ 24 = £41,667 2. £41,667 ÷ 60 = £694.45 (or £694.44 if exact answer from Q1 is used, rather than the rounded one) 3. £694.45 ÷ 60 = £11.57
Holi	9th March	Creating Colour	3C8 6R1	N/A
Spring Equinox	20th March	Spring Has Sprung	3F1b 3F10 4F10a 5C7a 5F2b 5F11 6C7a 6F11	1. 12/24 = 6/12 = 3/6 = 1/2 = 0.5 = 50% 2. There will be 12 hours in each period. 12 x 60 = 720 minutes 720 x 60 = 43,200 seconds
April Fool's Day	1st April	Don't be a fool!	3N1b 3N6 5C5d	1. 29,638 2. Open-ended task

Event	Extension ideas
Heart Month	• Present the data obtained for Q6 in an appropriate manner (table, graph). Use the data to calculate mean, mode, median and range. • Investigate whether the size of the heart (fist) is related to other measurements such as height, head size or arm length. • Investigate resting heart rates. • Investigate how different activities affect heart rate. • Find more facts about the heart and write own problems for others to solve.
Heart Month	• What fraction of the pack is yellow/ pink...? • Collect, present and interpret data to find out what fraction of all the Love Hearts the class have are each colour/ have particular messages. • If the sweets are put in a bag, what is the probability of selecting a green/yellow sweet? • How much would 50 sweets weigh?
Mother Language Day	• Instead of drawing a picture to illustrate the word, children could describe it without saying the word on the card. • Children could make their own cards based on mathematical words they think are particularly hard to remember. • Research the different languages spoken in your class/ year group/ school and present findings. • Show children numbers written in a language other than English and practise saying them together. Ask them to give the answers to mental calculations in that language.
Shrove Tuesday	• Tell the children how many people are in each family in Q1 and ask them to investigate the different ways the pancakes could be split between the family members. • Use ratios to scale up/ down a pancake recipe. • Investigate how many times pancakes of different sizes can be tossed.
Shrove Tuesday	• Produce and interpret a graph of the amount of money raised by Red Nose Day each year. • Calculate the increase/ decrease in money raised every year. • Use data to predict the amount of money that will be raised by Red Nose Day this year. How far was their estimate from the actual total?

Event	Extension ideas
World Book Day	• Convert answers to different units. • Children to use other events in the story to write their own word problems for others to solve. • Collect data on the number of times each letter of the alphabet appears on a page. Would children expect the same results if they used a different page?
World Book Day	• Create a variety of investigations using the words in books. • Put together a selection of the best-selling children's books and get the class to work out the differences between the profits made. How many of these books have been made into films?
Fairtrade Fortnight	• What fraction of the fruit/ chocolate that children have at home is Fairtrade? • What fraction of their weekly food bill is spent on Fairtrade products? • Ask children to bring in empty food packets- what fraction have the Fairtrade logo? • Conduct research to find out how many people know what the Fairtrade logo means.
Fairtrade Fortnight	• Children could research other aspects of each country, such as languages spoken, religions, life expectancy etc. Findings could be presented in different ways, e.g. pie charts to show languages spoken.
International Women's Day	• Children can invent their own questionnaires about their favourite types of flower/ favourite female singer, actress etc. then complete tally charts by asking their peers for responses. They can turn this data into a variety of graphs and diagrams.
World Maths Day	• Try out other online games, or paper versions of the games suggested, e.g. magic squares
World Maths Day	• Try other sequence-based activities such as matchsticks sequences.

Event	Extension ideas
British Science Week	• Ask the children to set their own matchstick challenges for the class to solve. • Investigate how many more matchsticks need to be used to turn 2D shapes into 3D shapes. Can a formula be written to express this?
British Science Week	• Get the children to invent their own recipes and scale them up/ down. • Get the children to open George's shop, selling ingredients at different prices. Challenge them further by getting them to offering discounts and sales and calculating the new prices.
Holi	• Word problems relating to paint ratios and proportions. • Paint a symmetrical shape picture where given ratios of the colours created have to be used.
Red Nose Day	• Produce and interpret a graph of the amount of money raised by Red Nose Day each year. • Calculate the increase/ decrease in money raised every year. • Use data to predict the amount of money that will be raised by Red Nose Day this year. How far was their estimate from the actual total?
Red Nose Day	• Plan a fundraising event (e.g. a cake sale), calculating expected profits. • Work out how much money would be raised for Red Nose Day if the whole class/ year group/ school participated in the school Red • Nose Day events.

Event	Extension ideas
Lent	• Ask children to investigate other shapes that can be made with the chocolates. • Give the children different shaped chocolates. Can they make the same shapes? Can they make any shapes that they couldn't make before? Why couldn't they make them with the original chocolates?
Lent	• Repeat for Mr Jackson's wife, who drinks 2 cups of coffee a day at home and buys a coffee from the coffee shop every day. • Calculate the savings made by giving up other drinks/ foods e.g. cake, chocolate (Children could do this for themselves- if they eat a bag of Haribo twice a week, how much does each packet in a multipack cost and how much would they save over 40 days?) • • How much profit does a coffee shop make on each cup of coffee sold?

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