

Year 5 Home Learning: Summer 1 – Week 4

Working together to achieve success'



Hello Year 5, we hope you are all keeping well. Here is our next timetable to continue to support your learning at home. We are really enjoying seeing all of the fantastic work you have been doing with your learning, so please continue to share with us via email at year-5@mossgate.lancs.sch.uk and we will share these on our school's Facebook page every Tuesday. Thank you to all of the families for taking the time to do this at such a busy time. Please continue to use the email address if you have any questions about the learning as well. Take care and keep safe.
Mrs Elwers and Mrs Massey.

Daily PE:

Start the day with 20-30 minutes of physical activity. Suggestions include: Joe Wicks Daily PE lesson Natasha Butler Daily Workout / Just Dance videos in YouTube. Additional physical activities are uploaded weekly onto our school website at:

<https://lancshireschoolgames.co.uk/year-3-6-spar-lancashire-school-games-activity-timetable/>

Daily Newsround:

Watch the 5 minute news summary daily at 12:15pm by going to <https://www.bbc.co.uk/newsround> and click 'Watch Newsround' in the top right hand corner. Discuss topical items in the news and research any aspects which interest – this could be a topic, country or person. Newsround is updated daily. You could even produce your own news report on one of the topics and share it with us!

Maths: This week we are continuing to learn about adding and subtracting decimals.

Go to <https://whiterosemaths.com/homelearning/year-5/> to access the resources. **This week's learning is named Summer Term Week 2 W/C 27th April.** Use the video to help explain the concept and then complete the activity (in your book) which you can view on screen by clicking 'Get the Activity'.

	Monday	Tuesday	Wednesday	Thursday	Friday
Mental Maths	Complete 15 minutes of IDL Numeracy (https://idlsgroup.com/) and/or Times Tables Rocks Stars (https://play.trockstars.com/auth/school).				
White Rose Maths	Lesson 1 – Adding decimals with the same number of decimal places	Lesson 2 – Subtracting decimals with the same number of decimal places	Lesson 3 – Adding decimals with a different number of decimal places	Lesson 4 – Subtracting decimals with a different number of decimal places	Lesson 5 – Friday Maths Challenge

English: Focus theme - Inventions.

Discover inventions from history which have changed the world, inventions which were discovered by accident and the latest inventions created.

When following links online, parents should monitor that children are remaining on that page only and are keeping safe online.

Also: Complete 15 minutes of IDL Literacy (<https://idlsgroup.com/>) daily which develops spelling, comprehension and keyboard skills.

Mon	Watch the BBC clip What is an invention? https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks2-what-is-an-invention/zrf92sq After watching the clip, write your own definition of what an invention is. Now scroll down to read about some key inventions in history. Based on what you have just read, select the invention you think is the most important. Write down which invention you have chosen, a short description of it and why you think it is the most important.
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Tues	<p>Scroll down to read the comic about Tim Berners-Lee, the man who created the World Wide Web: Once you have read the comic, write a short biography about Tim Berners-Lee's life. Remember to write your biography in chronological order (from his birth up until most recent times), selecting the key dates and facts about his life. Remember to read back through your work to check for spelling and punctuation and don't forget your Year 5 skills.</p>
Wed	<p>Scroll down to read about three inventions which were discovered by accident here: Once you have read this, watch this clip about another invention which was discovered by accident – the potato chip (or crisps as they are more commonly known in the UK): https://www.youtube.com/watch?v=rqNxyZAOhA (watch from the start up until 2:30 mins). Imagine you are to write about the discovery of potato chips in a similar style to the article you read at the start of this session. Write your version of the discovery of potato chips using the same format as this article, such as: selecting your main title, using the sub-headings 'The 'Oops' Moment' and 'The Details' with a short description and finally a sub-title for the discovery and a short explanation.</p>
Thurs	<p>Read about ten of the latest inventions created here: https://www.cbc.ca/kidscbc2/the-feed/10-of-the-latest-inventions-to-make-life-easier Imagine you are to write a countdown of the Top 5 Latest Inventions for a technology magazine. Select your top five based on the ten you have just read about and write your countdown. Try to include a short explanation of what the invention is.</p>
Fri	<p>Based on all the inventions you have looked at throughout the week, select your favourite one. Imagine you have been asked to create an advertisement to sell this invention on the TV, in a similar way to Shouty Man on Horrible Histories. If you are unfamiliar with Shouty Man, a compilation of his adverts can be found here: https://www.youtube.com/watch?v=R7ZkNvMMAfw Create your advert thinking about including persuasive features such as: the invention benefits, appealing adjectives, a snappy slogan, facts and offers. Don't forget to share your advert with us if you can.</p>

Topic

Mon	<p>Online Safety – Week 4 – False Photography Have another look at the presentation on False Photography that we worked on last term. See Summer 1 – Week 4 – Year 5 – False Photography. Scroll down to see if you can spot the edits that have been made to the photographs below. If you can, use the edit checklist below to alter one of your own digital images.</p>
Tues	<p>Science – Plants This week were going to recap water transfer in plants. Using the PDF can you create an experiment showing water transfer using coloured water in white flowers? You could try a selection of white flowers and find out which plant shows the best colour. Can you create a multi-coloured flower?</p>
Wed	<p>The suggestion is to use white carnations to get the best result but this experiment can be done with celery or even kitchen roll! Don't forget to send us pictures, videos or sound clips of your experiment. We're really looking forward to see what you discover.</p>
Thurs	<p>Topic – Plastic Pollution Complete an activity from the new Plastic Pollution learning grid. Go to the school website - Summer 1 Home Learning – Week 4 – Year 5 – Plastic Pollution Learning Grid.</p>
Friday	<p>Learn a new skill Can you learn a new skill over the week? It could be a household job (like using the washing machine or Hoover), baking something delicious, learning a new song with a dance routine, a gymnastic routine or even challenge yourself to do as many kick ups as you can in a minute? We will look forward to seeing what skills you develop over the week.</p>

Key inventions in history text:

Pedal Power

One of the great inventions of all time was the wheel, which appeared in Mesopotamia (modern-day Iraq) in the 4th millennium BC. 6,000 years later came the idea of putting two wheels in line to make a bicycle.



The Hobbyhorse (1817)

Invented in Germany, the hobbyhorse had a heavy frame, a seat in the middle, a wheel at each end and a primitive tiller (single arm) steering mechanism.

The rider scooted along with both feet on the ground and wore out many pairs of boots. Yet it took more than 20 years for anyone to add pedals and a drive system.

The Penny-farthing (1869)

The penny-farthing first appeared in France in 1869 and soon afterwards in England and America.

The name "penny-farthing" came from the fact that the bicycle seen from the side looked a bit like the English coins penny and farthing.

The front wheel was up to 1.5 metres in diameter, which allowed you to cruise at 24 kph. Riders had to sit almost on top of the large front wheel.

The main features were:

- Wheels built with spokes for the first time.
- Pedals attached to the large front wheel.
- Easy to ride slowly – you could ride it with your hands off at 3 kph.



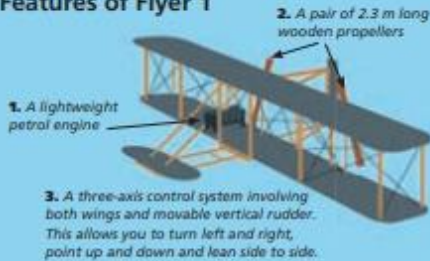
Up and Away!

Ever since people have walked on earth, they have watched birds and dreamed about flying. Near the end of the 18th century, the dream came true.

The Hot-Air Balloon (1783)

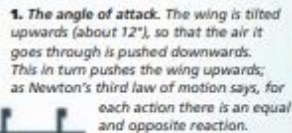
The first flying machine was a balloon, nine metres across, made from sackcloth with three layers of paper inside and held together with buttons. The builders were the French brothers Joseph-Michel and Jacques-Etienne Montgolfier. On 4 June 1783 the brothers lit a fire under their balloon to fill it with hot air.

Features of Flyer 1

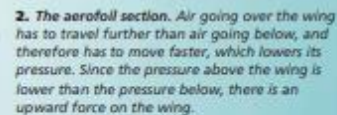
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1. A lightweight petrol engine
 2. A pair of 2.3 m long wooden propellers
 3. A three-axis control system involving both wings and movable vertical rudder. This allows you to turn left and right, point up and down and lean side to side.

How Aircraft Fly

On anything moving through the air there are four forces: **power** pushing forward, **drag** (air resistance) holding back, **gravity** pulling down, and **lift** pushing up. As long as there is more lift than weight, the thing will stay up. Aircraft get lift from two things:

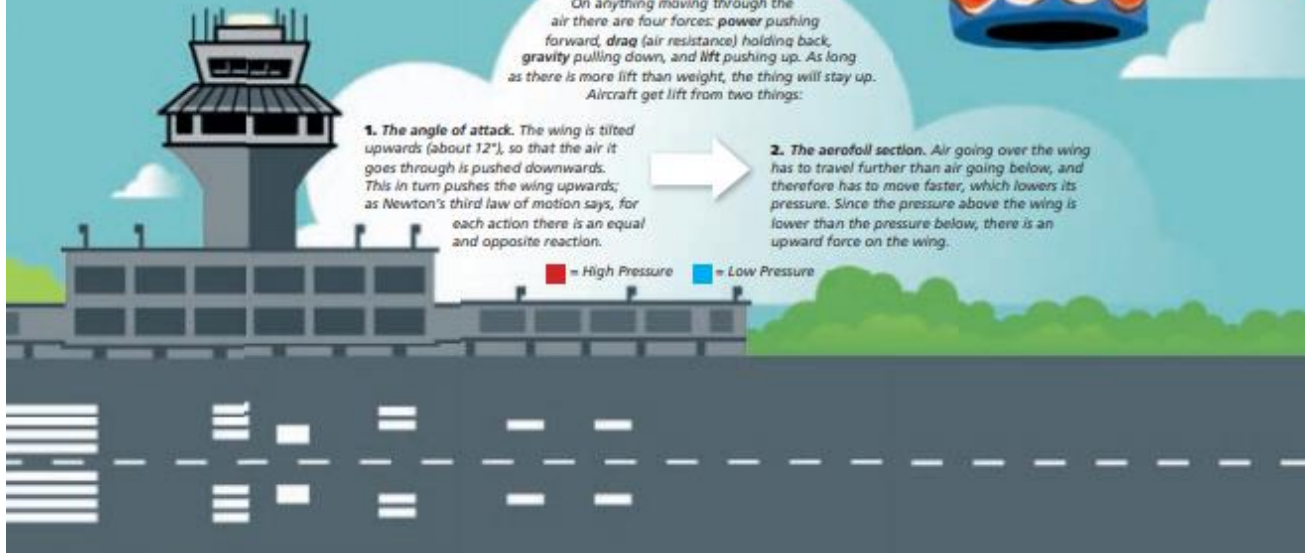


1. **The angle of attack.** The wing is tilted upwards (about 12°), so that the air it goes through is pushed downwards. This in turn pushes the wing upwards; as Newton's third law of motion says, for each action there is an equal and opposite reaction.



2. **The airfoil section.** Air going over the wing has to travel further than air going below, and therefore has to move faster, which lowers its pressure. Since the pressure above the wing is lower than the pressure below, there is an upward force on the wing.

■ = High Pressure ■ = Low Pressure



The Stealth Bomber (1993)

Northrop Grumman B-2 Spirit aircraft, commonly called stealth bombers, cost a billion dollars each, have a crew of two, a range of about 11,000 km and can carry sixteen 1,100 kg nuclear bombs.

They are hard for enemies to detect: their strange shape means radar beams bounce off them at odd angles, and they are coated in a substance which absorbs microwaves. On radar they only look the size of dinner plates. The engines are buried inside the wings to hide the heat of the exhaust.



Modern Aircraft

Letting Off Steam

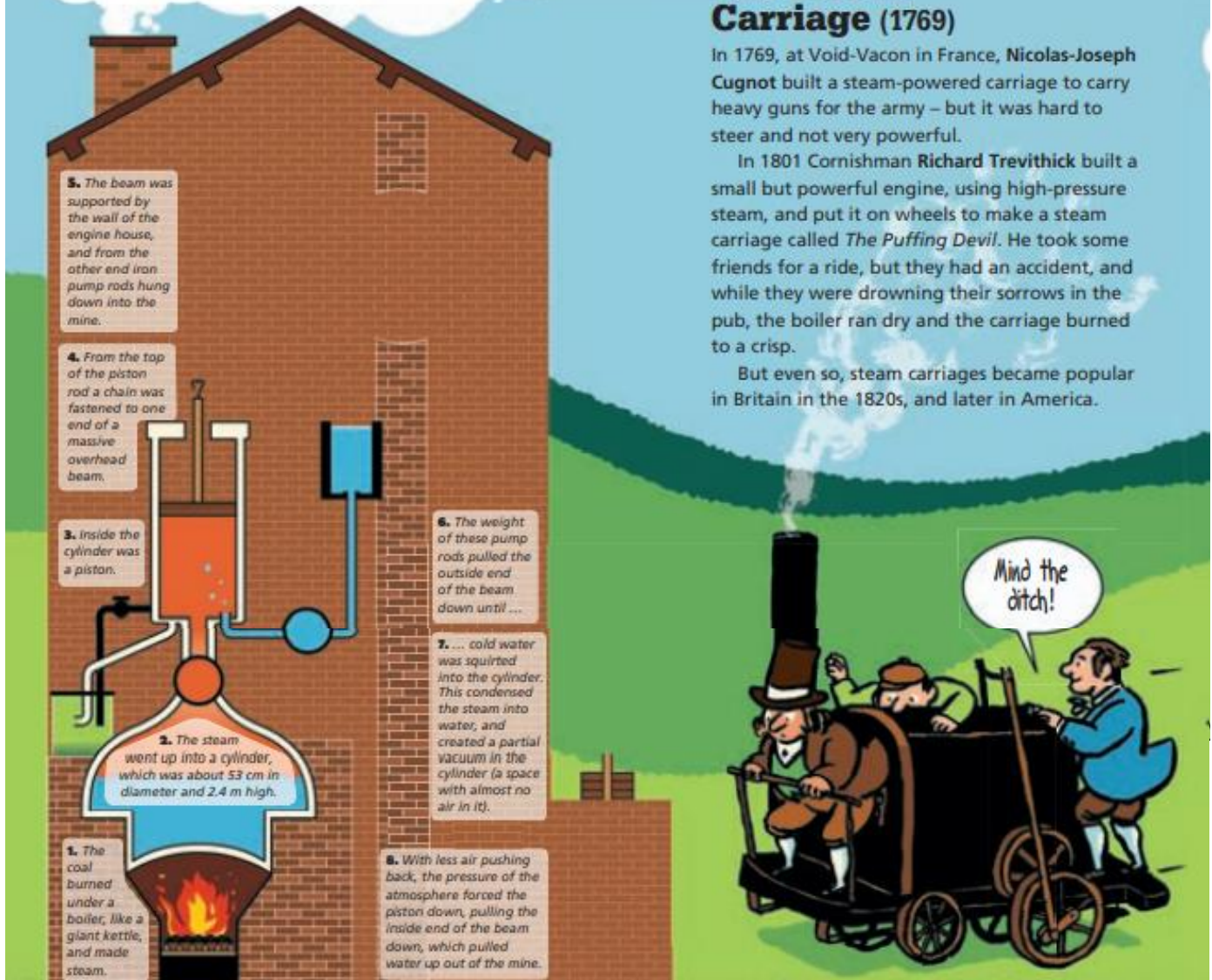
The grandfather of all steam engines was a Greek toy built in Alexandria around 2,000 years ago, but the earliest useful steam engines were built in the early 1700s. These were the ancestors of all the engines we have today. They provided portable power for the first time, and completely changed the way people lived, worked and travelled.

The Steam Carriage (1769)

In 1769, at Void-Vacon in France, Nicolas-Joseph Cugnot built a steam-powered carriage to carry heavy guns for the army – but it was hard to steer and not very powerful.

In 1801 Cornishman Richard Trevithick built a small but powerful engine, using high-pressure steam, and put it on wheels to make a steam carriage called *The Puffing Devil*. He took some friends for a ride, but they had an accident, and while they were drowning their sorrows in the pub, the boiler ran dry and the carriage burned to a crisp.

But even so, steam carriages became popular in Britain in the 1820s, and later in America.



Hero of Alexandria, the great innovator of the 1st century, is thought to have made the first steam engine. He called it an aeolipile, meaning "the ball of Aeolus" (Aeolus was the god of the wind). The way it works is an example of Isaac Newton's third law of motion in action. Newton's law says "to every action there is an equal and opposite reaction": in the aeolipile, the force of the steam coming out anticlockwise pushes the ball around clockwise.

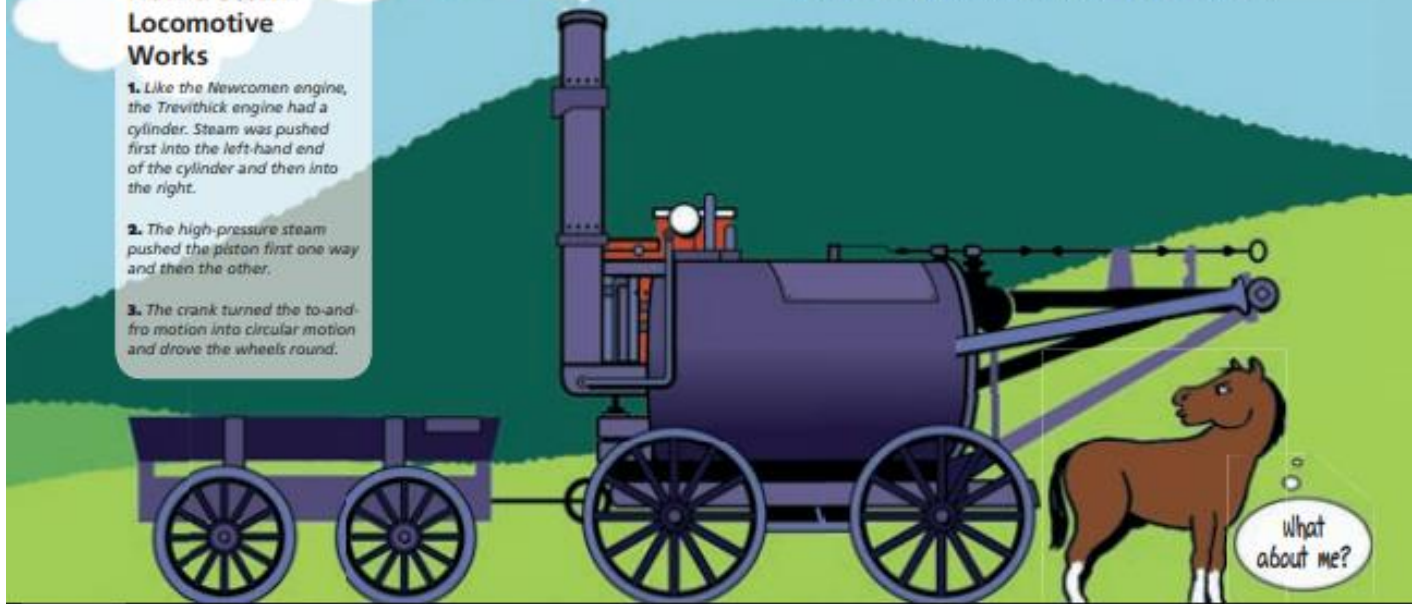
How a Steam Locomotive Works

1. Like the Newcomen engine, the Trevithick engine had a cylinder. Steam was pushed first into the left-hand end of the cylinder and then into the right.
2. The high-pressure steam pushed the piston first one way and then the other.
3. The crank turned the to-and-fro motion into circular motion and drove the wheels round.

The Steam Locomotive (1804)

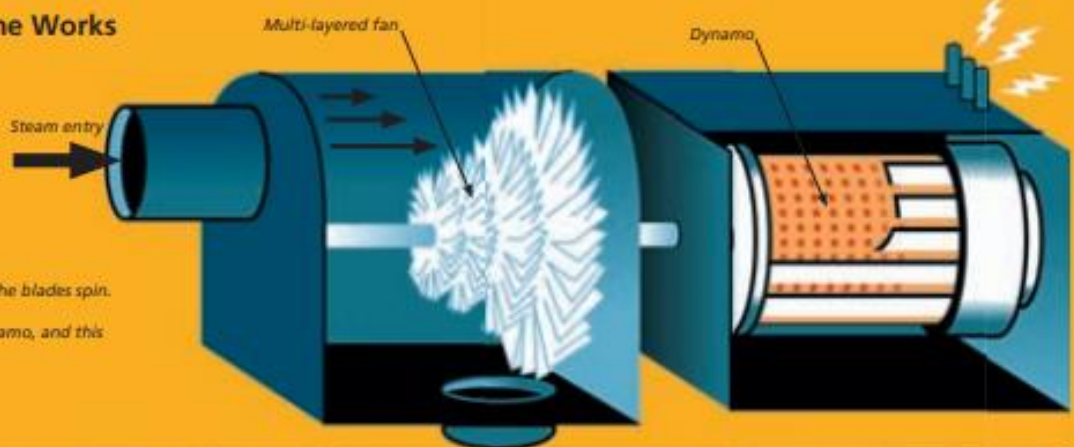
In 1804 Trevithick put another of his high-pressure engines on wheels at the Pen-y-darren Iron works in South Wales, and on 21 February it pulled 10 tons of iron and seventy passengers down the cast-iron tramway to the wharf on the canal at Abercynon.

On the way he had to cut down several trees that were overhanging the track, and the heavy locomotive broke most of the cast-iron rails, but this was the first time a steam locomotive had pulled a train. When tougher wrought-iron rails became available a few years later, the steam locomotive became an incredibly important method of transport.



How a Steam Turbine Works

1. A jet of super-high-pressure steam is blasted into the turbine.
2. The steam hits a fan with a series of blades. As the steam passes one set of blades, it meets a larger set, and then a larger set, and so on.
3. Energy from the steam makes the blades spin.
4. The spinning blades turn a dynamo, and this generates electricity.



MINI HISTORIES COMIC

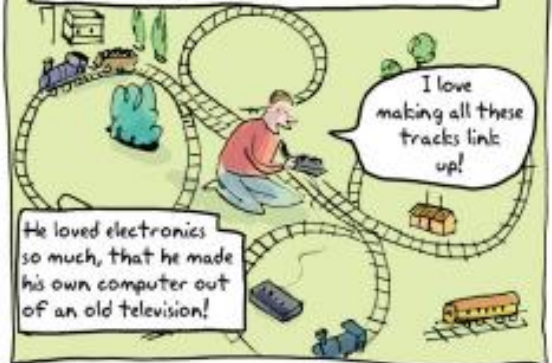
TIM BERNERS-LEE

NG KIDS' time-travelling mouse, Max, meets the man who dreamed up the World Wide Web...

Tim was born in London on 8 June 1955. As a boy he was fascinated by trains and made electronic gadgets to control his train sets.



Hello, readers! This month we're celebrating the work of Tim Berners-Lee, the genius behind the World Wide Web!



I love making all these tracks link up!

He loved electronics so much, that he made his own computer out of an old television!

His love of maths and electronics helped him through Oxford University, where he studied Physics. He then worked at a Swiss science research centre called CERN where he studied High Energy Physics. At CERN they have big machines called accelerators for smashing particles together for study.



This is going to be SMASHING!

Tim discovered that at CERN there were lots of scientists from many countries using different computer systems that couldn't share their important information. It was very frustrating!



Argh! I want to smash this place up!

So, he came up with a simple solution to get all the different computers to talk to each other, via the internet (which had existed in a basic form since the late 60s!).



Simple?! This looks complicated!

I promise you, it really is simple!

Tim came up with HTML, URL and HTTP (Google them!) which were the basis of what we now call the World Wide Web. This meant people could have web pages that could easily link to one another.



But, where are the funny kittens?

First web page.

It worked so well, that the whole of CERN shared information at the click of a button!

Tim then realised that this simple idea could be used globally to share information and ideas for everybody to access. It wasn't easy at first to get people on board...



Bah! It'll never catch on!

But, slowly but surely, it DID catch on and now millions of people around the world use the World Wide Web (www) every day, sharing information about every aspect of life!



See? Didn't I tell you it was fun to link everything up?

People can learn and teach, buy and sell and discuss every subject under the sun. But, not all countries are allowed this Freedom of expression.



So, in 2009, Tim set up the World Wide Web Foundation to help spread freedom on the 'net.

Thanks Tim! Now I can watch all the cat videos in the world!

For creating probably the greatest form of communication the world has known, Tim has been awarded many awards, from a Knighthood, to officially being one of the 20th Century's most important people.



Just wait till I tell everyone on Facebook.

Tim has completely changed the world, so let's make sure everyone on the planet can benefit!



Tim! A quick selfie for my blog!

Inventions discovered by accident:

ACCIDENTS

Happen

BUT SOMETIMES THEY RESULT IN AMAZING DISCOVERIES!



Accidents can be really embarrassing. But from time to time these oopsies lead to something awesome. Check out these three fortunate mishaps...

THE INVENTION: MICROWAVE OVEN

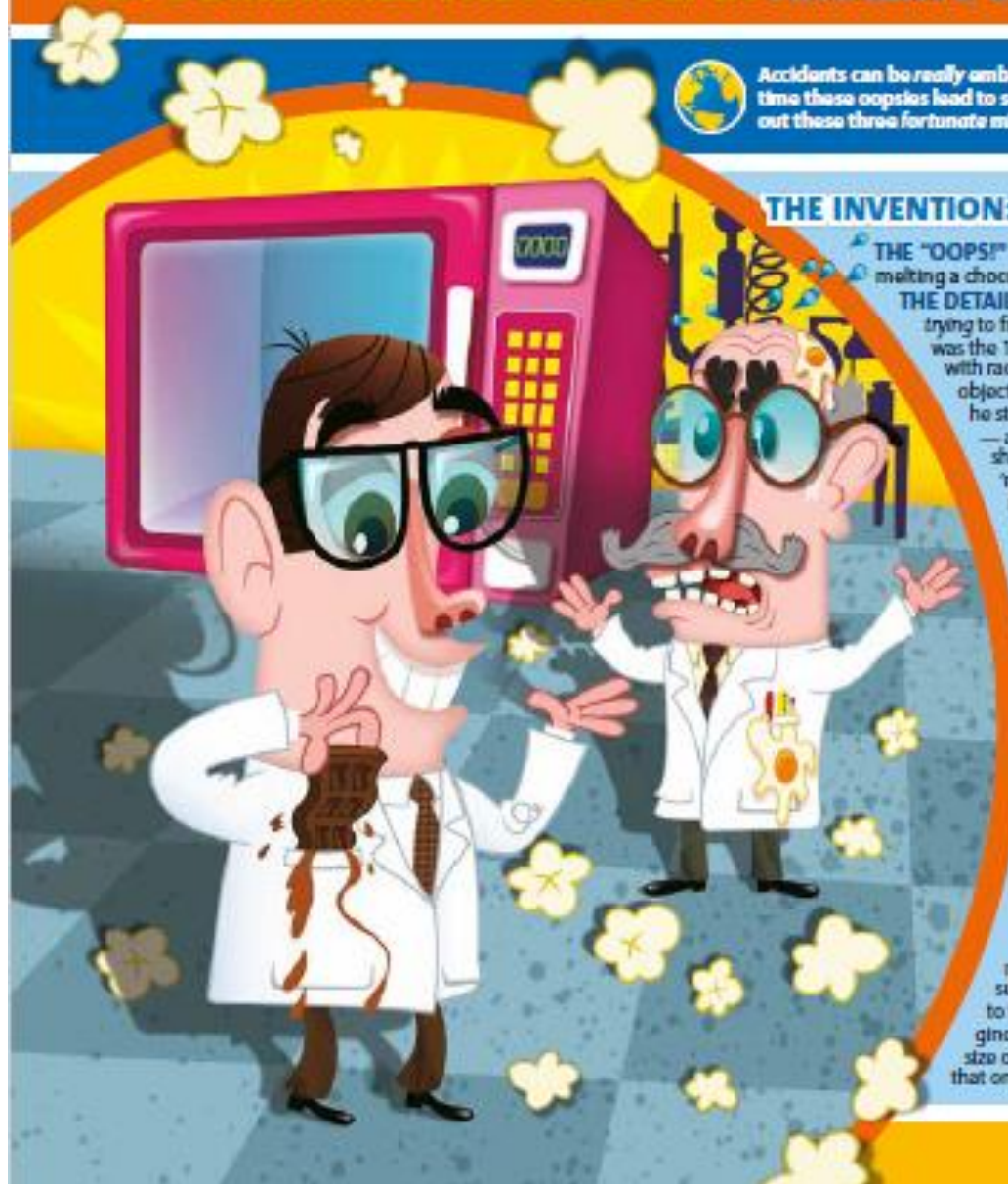
THE "OOPS!" MOMENT: Accidentally melting a chocolate bar in a pocket

THE DETAILS: Percy Spencer wasn't trying to find a quick way to cook food. It was the 1940s, and he was experimenting with radar — radio waves used to detect objects. But as he walked around the lab, he stepped in front of a 'magnetron' — a device in radar sets that makes short electromagnetic waves called 'microwaves'. Spencer didn't think much of it... until he reached into his pocket and pulled out a chocolate bar that had turned into a gooey mess!

STICKY SURPRISE

We now know why that happened — microwaves excite water molecules in food, which causes the molecules to vibrate and give off heat generated by internal friction. But Spencer had to find that out for himself... first, he aimed a beam of microwaves at some kernels of popping corn. The kernels burst and popcorn flew everywhere. He then zapped a raw egg, which exploded in his lab partner's face!

Spencer's discovery that microwaves could heat food superfast, from the inside, led to the first **microwave oven** — a ginormous 340kg gadget about the size of a fridge! Imagine trying to put that on your kitchen worktop!



THE INVENTION: DURABLE RUBBER

THE "OOPS!" MOMENT:

A temper tantrum

THE DETAILS: America was hit by 'rubber fever' in the early 1800s — lots of items, including clothes and footwear, were made out of the material. Trouble was, these objects either melted into a sticky pile of goo in heat, or cracked in the cold.

But hardware merchant **Charles Goodyear** was determined to figure out how to turn natural rubber into a material that could stand up to extreme heat and cold.

TEMPER, TEMPER

In 1839, after years of experiments, Goodyear had a new plan — he'd add sulphur to the rubber to change its properties. Armed with a sample of his new rubber formula, he went down to the local general store, but people there just laughed at what they thought was another silly idea about rubber.

Angered, Goodyear waved his hands about as he shouted. The mixture flew out of his hand and landed on a hot stove. And when he went to prise it off, he found a substance that was hard, like leather, but still elastic — a substance later called **vulcanized rubber** that's similar to what we use today to make everything from walkies to bicycle tyres. By adding heat to his new mixture of rubber and sulphur, he created rubber that was elastic, strong and stable. Goodyear's temper had accidentally found the key to a great discovery!



LEARNING FROM

mistakes

If these inventions show us anything, it's that we all make mistakes — and that's not always bad.

Mistakes often take us in new directions — and help us learn new things.

People who say something is impossible aren't always right. A lot of things were 'impossible' — before someone worked out how to do them.

If you don't succeed straight away, don't be afraid to try again and again, and again — and again.

THE INVENTION: ARTIFICIAL SWEETENER

THE "OOPS!" MOMENT: Dirty hands

THE DETAILS: We all like a sweet treat from time to time. But sugar can be too much of a good thing. That's why a lot of foods — from fizzy drinks to cereal — contain artificial sweeteners. And the first one was actually a tasty surprise.

In the late 1870s, German scientist **Constantin Fahlberg** was hard at work in his lab when a beaker of chemicals accidentally tipped over. He cleared away the mess but the harmless chemicals were still on his hands.

SWEET SPLASH

Without pausing to wash, Fahlberg carried on with his work and then went home to eat. Sitting down at the table he began his meal, picking the food up with his dirty hands. But he noticed his bread tasted strangely sweet — something on his hands had transferred onto the bread. What was it?

The chemist rushed back to work.

He licked and tasted everything in sight (not exactly the smartest idea in a lab!), and found what he was looking for — the substance in the beaker that had spilled was sweet, much sweeter than sugar.

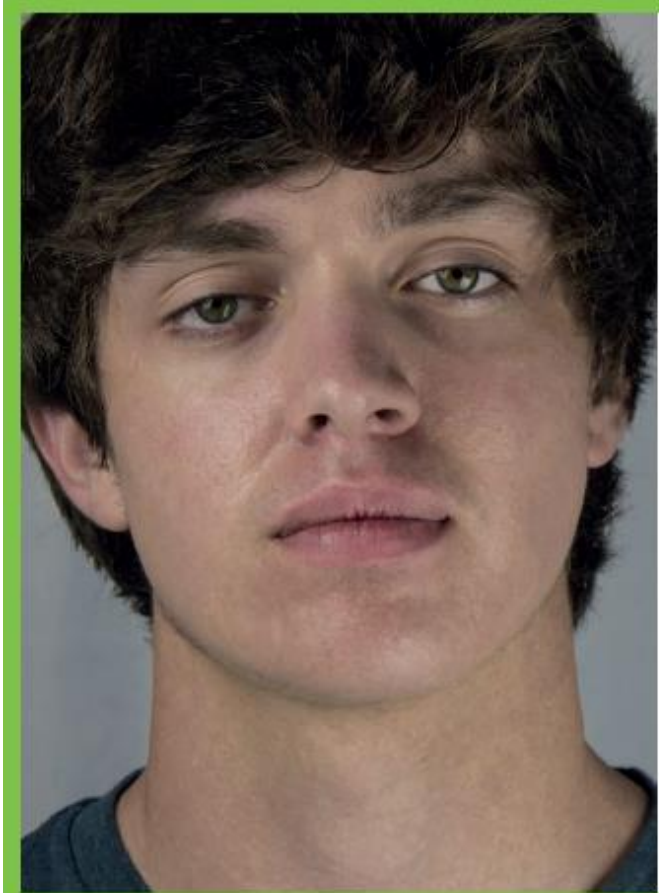
Fahlberg eventually named his discovery **saccharin**, the world's first artificial sweetener. Dirty hands? Delicious!



False Photography resources

Spot the difference between the photos







Editing digital photographs checklist:

Start here:

Crop your photo.

Make your photo brighter or darker.

Change the colour of your photo.

Add a filter.

Now try:

Change the colour of just one thing in your photo, e.g. someone's eyes.

Change the highlights and shadows.

Smooth a surface.

Change the shape of someone's face or one of their features.

Use selective focus or a blur to highlight part of your photo.