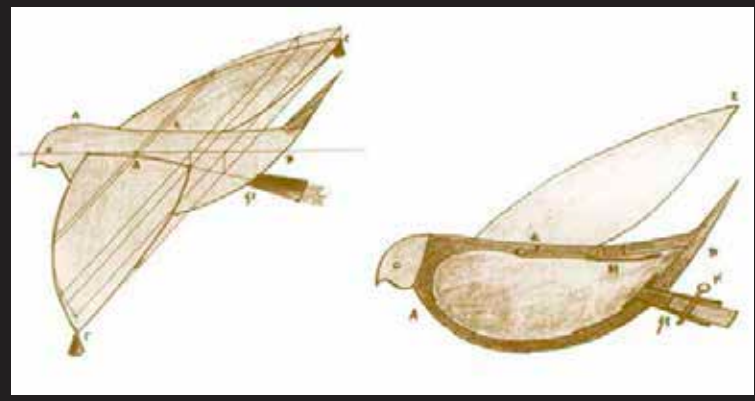


When were screws invented?

Believe it or not many of the workman tools, such as saws, we use today were invented, such as saws, we use today were invented during the **Bronze Age** or even before. Screws may not be quite as old as some other tools but they are still very very old!

There is no exact date of invention, but it is believed that **Archytas of Tarentum** invented screws around **400BC**. That's almost 2500 years ago! Archytas was a Greek mathematician and **philosopher**.

Archytas



Did you know? The screw shape was not actually invented by humans. They have been found in nature for millions of years! Find out more later...

Amazing Archytas (400-350 BC)

1. Archytas was not only a mathematician and philosopher, he also served for seven years as **commander in chief** of his city!
2. Archytas applied maths to music, coming up with a **theory of sound!**
3. Archytas was a close friend of the famous philosopher **Plato** (more on him another time) and even had to send a ship to rescue him.
4. Archytas believed **maths** provided the path to the explanation of all things!
5. Archytas invented two mechanical devices. One was a **mechanical bird** that moved using steam or compressed air. The other was a **rattle** for children 'to prevent them from breaking things about the house!'

What Were Early Screws Used For?

Screws were first used to **extract** oils from olives and grapes, not to join two things together!

Did you know? Olive oil has many health benefits. It is extremely high in oleic acid which is used to reduce blood pressure and also contains vitamin E and healthy carotenoids and oleuropein.

Fun Fact: One olive tree can produce around four litres of oil every year for hundreds of years!



Screws were then developed by the **Ancient Greeks** to extract water from objects, such as ships. **Check out the Archimedes Screw section later on to learn more!**

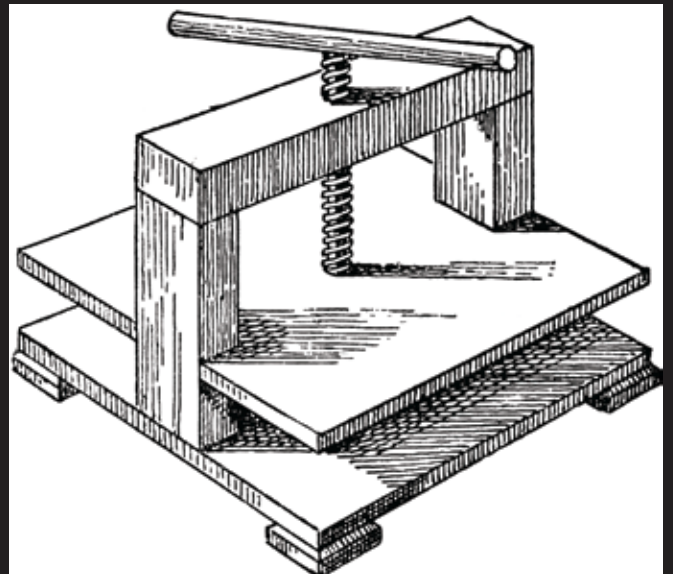
The **Romans** then used the Archimedes screw principle later to create drainage ditches. Without these they would not have been able to drain their toilets!

Later in the **Middle Ages** screws were adapted for use in the **printing press** and the paper press.



Did you know? The invention of the printing press was one of the most important inventions of all times!

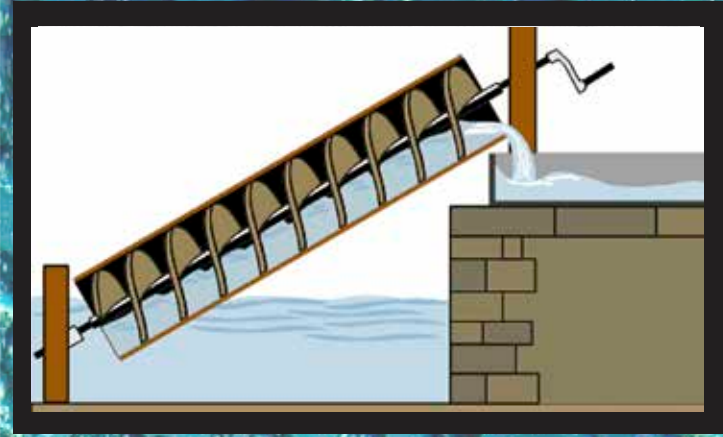
It finally allowed people to share large amounts of information quickly and in huge numbers. It meant newspapers and books could be printed.



Archimedes Screw

In The **Archimedes Screw** is a machine that was initially used by Ancient Egyptians, who used this screw to lift water from the Nile river.

It was then later introduced to Greece, where it got its name as it was commonly thought to be invented by the Ancient Greek scientist and mathematician Archimedes. It is said that he invented it when he needed to remove water from the bottom of his ship.



Used to raise water, the Archimedes Screw consists of a screw inside a hollow pipe. **If you want to make one, go to the activity pages! You can even try to suck your cereal up with it...**

Archimedes inspired modern screw pumps, which are mostly used for pumping sewage, or draining water.

Did you know?

*The Archimedean Screw is also the name of a sculpture in 's-Hertogenbosch, the Netherlands, created by British sculptor **Tony Cragg**.*



Archimedean Screw

Archimedes Screw

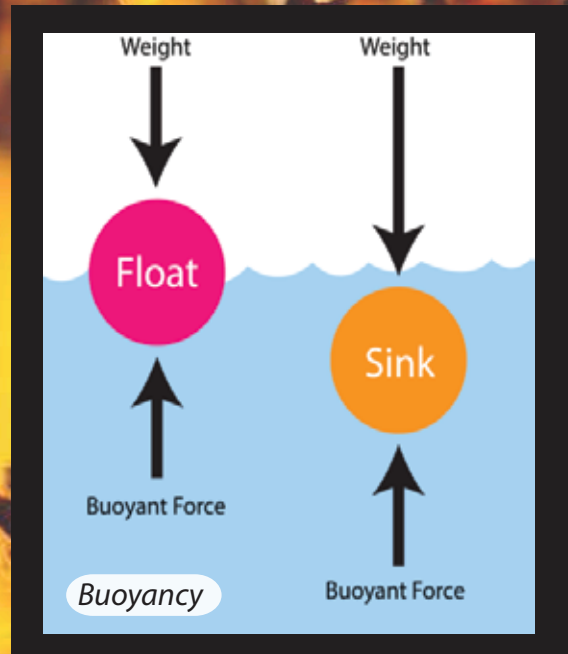
You may have noticed that Archimedes popped up in the fact sheets about boats too! Here are some fun facts about the extraordinary man:

Awesome Archimedes (287-212 BC)

Archimedes understood and wrote about what happens when things float in liquids, which is called **buoyancy**.

Learn more about this in the Boat fact pages.

1. Cranes and complex pulley systems used today are a direct result of the work Archimedes did with **levers** and **pulleys**.
2. Archimedes was so far ahead of his time in mathematics, it took a further 1800 years before his work was fully understood by **Sir Isaac Newton**.
3. A crater on the **moon** is named after Archimedes!
4. Archimedes was killed by a Roman soldier when they were conquering **Syracuse**.
5. According to one story told about Archimedes, **King Hieron** of Syracuse was worried that the makers of his crown were not using solid **gold** to manufacture it. The king asked Archimedes to find a way to discover if this was true.
6. To solve this problem, Archimedes is said to have come up with a way to work out the **density** of material while he was taking a bath as the displacement of the water in his bath helped the theory come to him. He is said to have jumped out shouting '**Eureka!**' and running the streets in excitement!



For Fastening Finally

Interestingly screws were not used to fasten until the mid 1400s, so about 800 years after they were invented!

Screws were only factory produced in the mid 1700s. This meant that tiny screws were all being made by hand. **Would you have the patience to sit down and do that?**

Because screws were **handmade** it meant that no two screws were ever alike!

Craftsmen would painstakingly carve each one, and the quality of the screw depended on each individual craftsman. It was long hard work, which often produced poor results as the screws were uneven with shallow threads.

Factory Fashioned

It might not sound so interesting and important, but being able to factory produced screws has allowed many of the **inventions** we know to happen today, including cars, computers, trains and much much more.

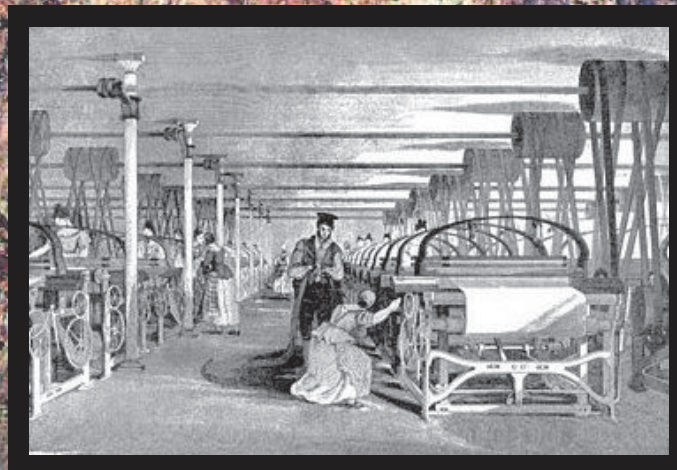
The first screw factory was a financial failure!

In England in 1760 **Job and William Wyatt** invented a design for a machine that could produce screws automatically, which was much easier than making them by hand.

However, it took them 16 years to raise enough money to open the factory.

Sadly they were not very successful, and did not make much money from their machine.

Their machine is thought to have encouraged the **Industrial Revolution** in England, as it could produce 10 screws per minute.



Factory Fashioned

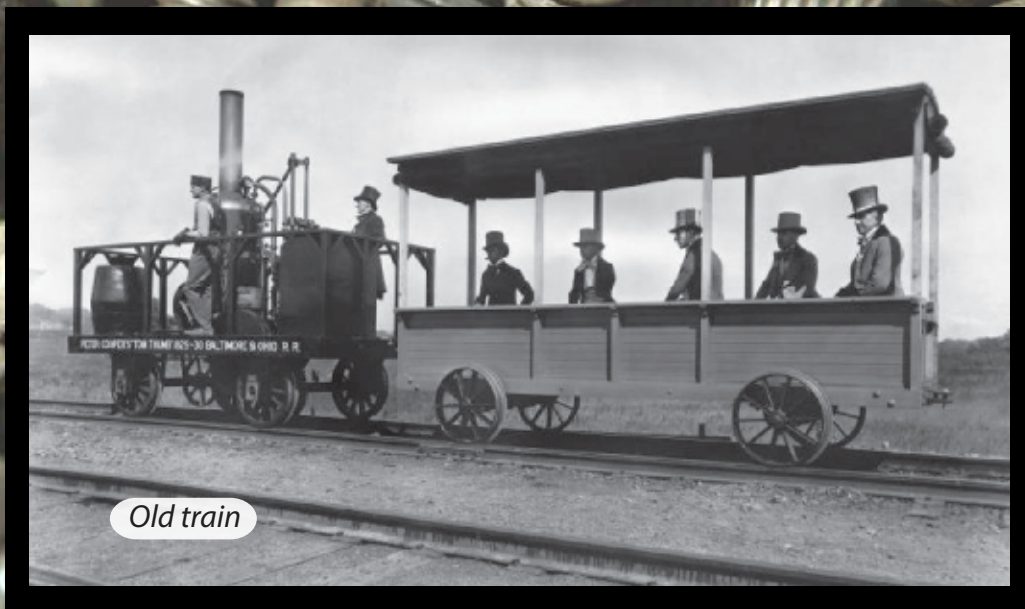
Jesse Ramsden in 1770 figured out how to use a lathe machine for screw cutting. This helped later to standardise the sizing systems of screws, meaning that screws could be made in the same sizes by different factories and the same screws could then be used for different things. This arrived just before the **American Revolution!**

Importantly, in 1928 **The National Screw Thread Commission** established a standard for screw threads for interchangeability. This allowed screws to be used for instruments that needed exactness. **Without this you wouldn't be able to read these facts as we wouldn't have computers!**



Old computer

***Did you know?** Factory made screws are so important as they made it possible for the invention of canals, railroad tracks, steam engines and machine tools! Without them the world would be a very different place.*



Old train

How Do Screws Work?



Screws are commonly used with a **screwdriver** or **wrench** in order to rotate it, so that it threads into the material and tightens into it. The screw mechanism allows for a large force on an object with a lot less effort.

Screws have a '**head**' which ensures that the screw can always be seen and is never lost. Screws also have a sharp pointed end so it can easily drill into the wood.

An essential part of the screw is the material, which is usually **steel**, as it is strong metal.

Screws are different to nails as screws have a **helix** shape to prevent it falling out, which nails do not have.

There are three main types of screws; countersunk, raised head and round head.

Fun Fact: The screw business is worth \$30 billion in America!



Raised head



Countersunk



Round head

Hello Helix!

The specific shape of screws is a **helix**, not a spiral. Spiral staircases are in fact in the shape of a helix, not a spiral, despite the name!

Did you know? The plural of helix is helices!

Helices can be either right-handed or left-handed. If it shows a clockwise screwing motion as the helix moves away from the observer, then it is called a right-handed helix; if towards the observer, then it is a left-handed helix.

A helix shape is seen in all sorts of things, but one especially important one is actually inside your body!



DNA is the material in you, and other living things, that carries all the information about how you will look and function. It is in the shape of a double helix! The 'double helix' describes the twisting together of two helices.

Fun Fact: *If unwound, all the DNA in your body could stretch from the earth to the sun and back 600 times (over **110 billion miles**)!*

*Did you know? In 1953 Francis **Crick** and James **Watson** were the first people to describe the structure of DNA as a 'double helix'. They even won a **Nobel Prize** for this observation!*

Screw-shaped Skyscrapers

El Tornillo (the F&F tower), in **Panama** is a building in the shape of a screw! It was even rated among the top 10 skyscrapers in the world when it was completed in 2011.

Its 47 floors stretch 243 meters (797 ft) towards the sky!

Did you know? Tornillo means screw in **Spanish**, the language spoken in Panama!

Fun Fact: Despite being 130 times smaller, Panama has more bird species than the entire continental USA. Out of its **986** recorded species, the national bird of Panama is the **Harpy Eagle**.

The **Turning Turso**, in **Malmö**, Sweden, also rises from the ground like a screw. It doesn't look quite as screw-like as El Tornillo as it has less turns.

At 190 metres (626 ft) high, his twisting skyscraper is the tallest building in Scandinavia!

Fun Fact: Malmö has a super long bridge, the **Öresund Bridge**, that links it to Copenhagen, Denmark! You travel the first 8 kilometres over the sea on the bridge, then the final 4km through the world's longest underwater tunnel.

Other twisted screw-like skyscrapers include **United Tower**, Bahrain, **Mode Gakuen Spiral**, Japan and **Evolution Tower**, Russia.

Not a skyscraper, but another amazing screw-shaped building is the **Wonderful Barn** in **Ireland**. It's corkscrew shape comes from the ascending stairs around the outside of the building.

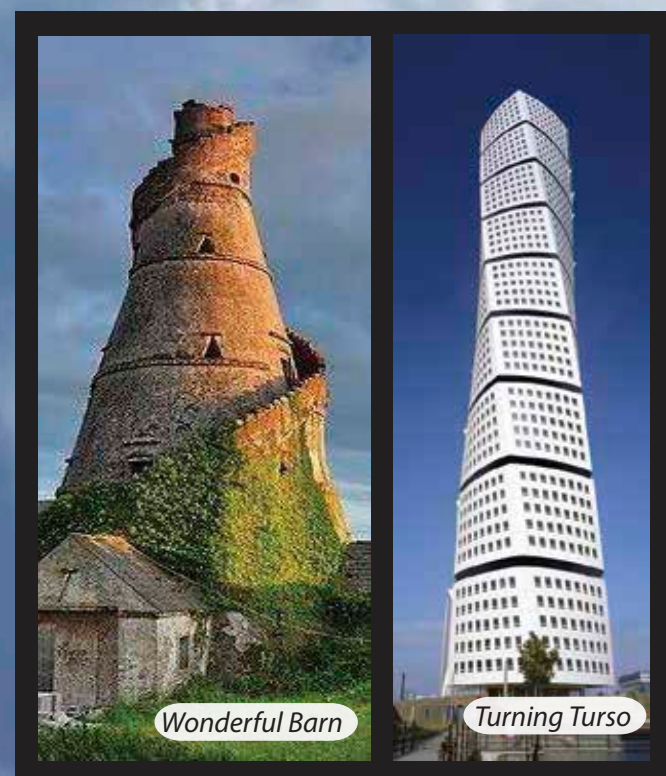
Fun Fact: The Wonderful Barn was built in 1743 as a dovecote, meaning it would house pigeons or doves!



El Tornillo



Harpy Eagle



Wonderful Barn

Turning Turso

Radical Roller Coasters

Alton Towers in England had a roller coaster called the **Corkscrew**. It was the park's oldest ride and was used a lot to attract tourists. It was also the first double inverting rollercoaster in England! It was dismantled in 2008 as it was too old and becoming dangerous.

*Did you know? The Corkscrew at Alton Towers was so popular that waiting time for the ride could be **6-9 hours!***

*Fun Fact: One of the coasters cars was put on Ebay and was sold for **£7,200** showing how famous the corkscrew design was!*



Another roller coaster called the **Corkscrew** is at **Cedar Point** in Ohio, United States. It was built in 1976 and is still operating!

*Fun Fact: The Corkscrew at Cedar Point was the first roller coaster in the world with **3 inversions!** That means you go upside down 3 times!*



Incredible Ice Climbing

Ice climbing is a dangerous activity which involves climbing up different ice walls like frozen waterfalls, cliffs and rocks!



Believe it or not, screws are so widely used that they even have a purpose in this activity! In order to climb steep surfaces a climber must use an '**ice screw**' to screw into the ice and hold them in place in case they fall. It is also known as an **anchor**.

There are different types of ice screws for different types of climbs, as well as ice axes and ropes.

*Did you know? Titanium ice screws were first made for the Soviet Union during the **Cold War** for their missile technology?*

Ice climbing competitions started in **Russia** and have been held each winter since 1970. There are lots of world records for ice climbing as there are different ones for different mountains.



Ice Screw

Dangers to climbers include:

- **rocks** falling from the mountain
- extreme cold which can cause **frostbite**
- **falls** which can break climbers' legs and arms or even cause death

Fun Fact: One remarkable ice climbing world record was set by **Dani Arnold** in 2014 on Crack Baby in Kandersteg, Switzerland. It would take most climbers a full day to climb 1115 feet of vertical ice, but Arnold did it in just **27 minutes and 13 seconds!**



Ice Screw

More Super Screws...

Turns in Teeth:

Dental implants are little screw shapes which are inserted into someone's bone to replace missing teeth.

Did you know? The screw, which looks like a tooth root, is around 13mm, so this whole thing needs to be drilled directly into the bone to hold!



Musical Screws:

If you are interested in music you might already know that **violins** have large screws!

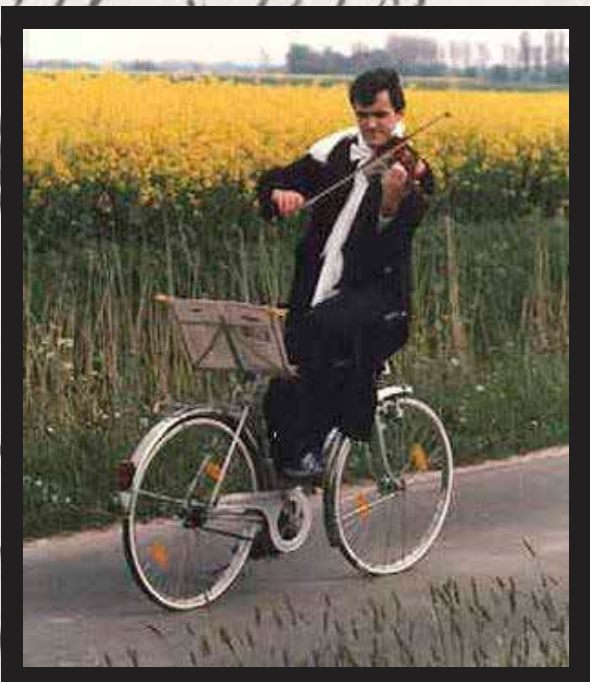
Violins are a **string instrument**, with four strings, and are usually played with a bow. Each string has a **tuning peg** which consists of a metal screw. This is used to tune it.

The tuning is a delicate process meaning the screws only have to be rotated a little to get a completely different sound! These pegs can actually be decorated with shell, metal or plastic rings.

*Did you know? Violins originated in **Italy**, and the first known violin was made in the **16th century**, about 500 years ago.*

Fun Fact: The world record in cycling backwards playing a violin is 60.45 kilometres in 5 hours 8 seconds!

Many other instruments use tuning peg screws. These include the **guitar** and **double bass**. In fact most string instruments use screws!

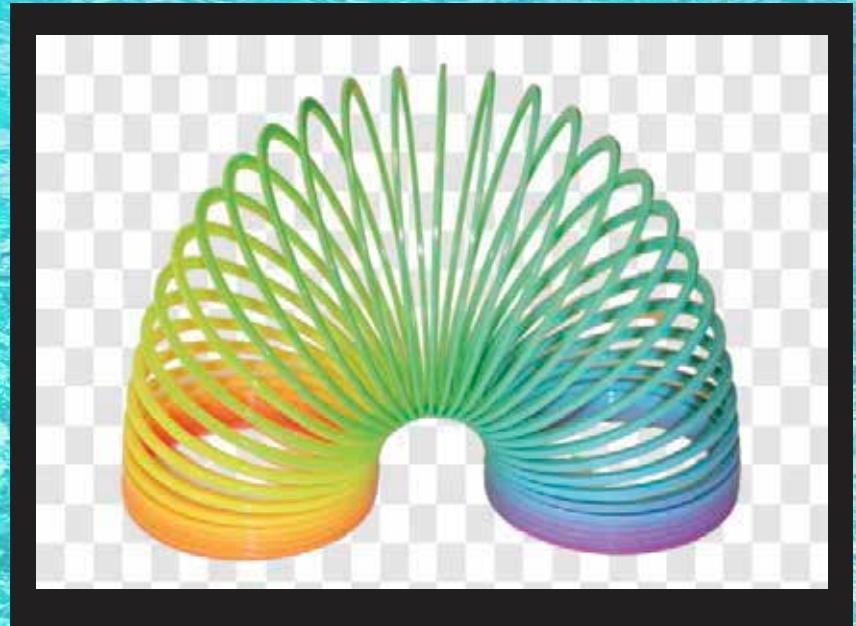


More Super Screws...

Slinky Springs::

Have you ever played with a **Slinky** toy? If you have, you've been playing with a screw (helix) shaped spring! Slinky's have entertained kids and adults since **1945**.

Tiikat especially loves watching them go downstairs!



***Fun Fact:** During the **Vietnam War**, U.S. soldiers used Slinkys as mobile radio antennas!*

***Did you know?** Slinky is the Official State Toy of **Pennsylvania**, USA!*

***Fun Fact:** **NASA** used the springy toy for **zero-gravity** physics experiments in **space**!*



Helix Horns

Addax

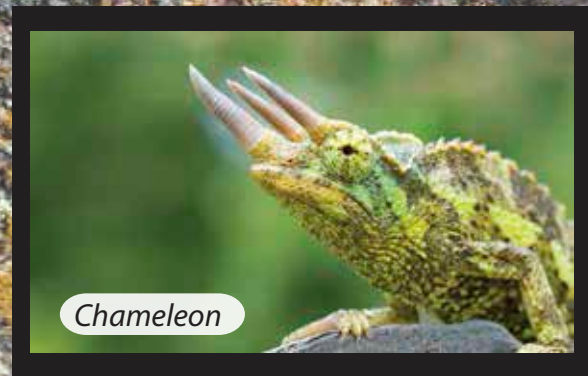
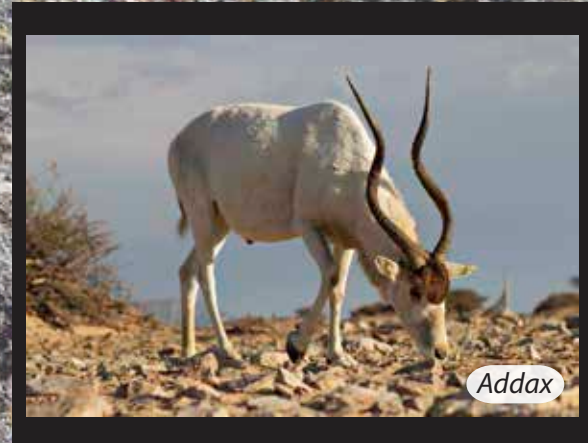
Living in the **Sahara Desert**, an **Addax** is a white antelope that has large screw shaped horns. In fact, these **twisted horns** grow to around 55 to 85 centimeters long!

Their horns are a form of defense, which both the males and females have to protect themselves from **predators**, such as lions and leopards. This is especially important as the Addax are **critically endangered**.

Did you know?

*The addax is sometimes known as the **screwhorn antelope**. Why do you think that is?*

Fun Fact: Bedouins use another name for the addax, the **Arabic bakr al wahsh**, which literally means "**the cow of the wild**"!



Scimitar Oryx

The **Scimitar Oryx**, originally from **North Africa** like the Addax, also have screw shaped horns.

Similar to the Addax, both the males and females have horns, but the females' are thinner. The horns are hollow and so can easily break, especially as they are also so long, from **1-1.2 meters**!

Did you know?

*Sadly this species went extinct in 2000. However, the **Ouadi Rime-Ouadi Achim Faunal Reserve** reproduced this breed and in 2016 released some of them back into the wild! **They were able to keep the species alive!***

Jackson's Chameleon

This time let's look at a reptile, not another mammal. **Jackson's chameleon**, which you can find in **East Africa, Hawaii, Florida** and **California**, is a reptile with screw shaped horns. It is sometimes called "**three horns**", because the male has three horns: one on the nose and one above each eye.

Fun Fact: While a Jackson's chameleon is usually bright green, with some blue and yellow, in true chameleon fashion they can **change colour quickly! Their colour depends on their mood, health and temperature.**

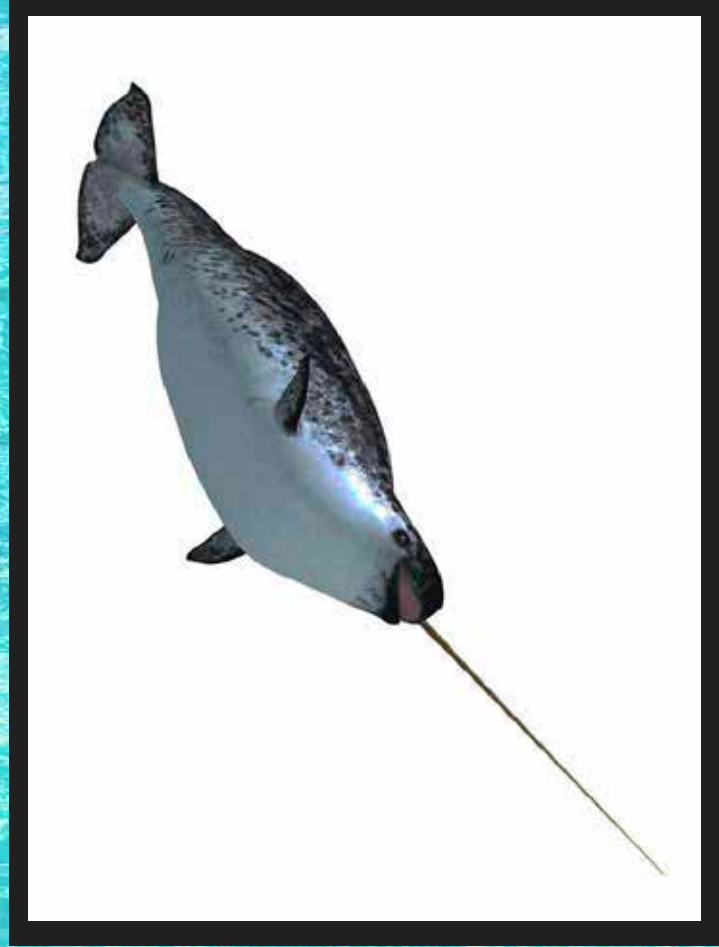
What colour would you like to be able to change to with the click of your fingers?

Sea Unicorn

Did you know unicorns, or something very like them, do exist in the sea! **Narwhals** are whales that have a large tusk on their head, which is why they are often referred to as "**unicorns of the sea**". In fact, Narwhals are actually believed to have inspired the ancient myth about magical horses with a long horn projecting from their heads.

Look carefully at the Narwhal tusk and you will see that it is, in fact, a screw shape! They are actually a kind of super-sensitive tooth that grows from the upper jaw of most male narwhals.

***Fun Fact:** These screw-shaped tusks can grow up to 3.1m (10.2 ft), which is similar to the height of 2 people!*



These magnificent creatures are found in **Arctic** waters, primarily near Canada, Greenland and Russia. Even though they are only medium-sized whales, the average weight of an adult narwhal is still 800 to 1,600 kg (1,760 to 3,530 lb)!

Did you know?

In the winter, the male narwhals occasionally dive up to 1,500 m (4,920 ft) in depth, with dives lasting up to 25 minutes!

***Fun Fact:** Narwhals, like most toothed whales, communicate with "clicks", "whistles", and "knocks".*

Fabulous Fossils

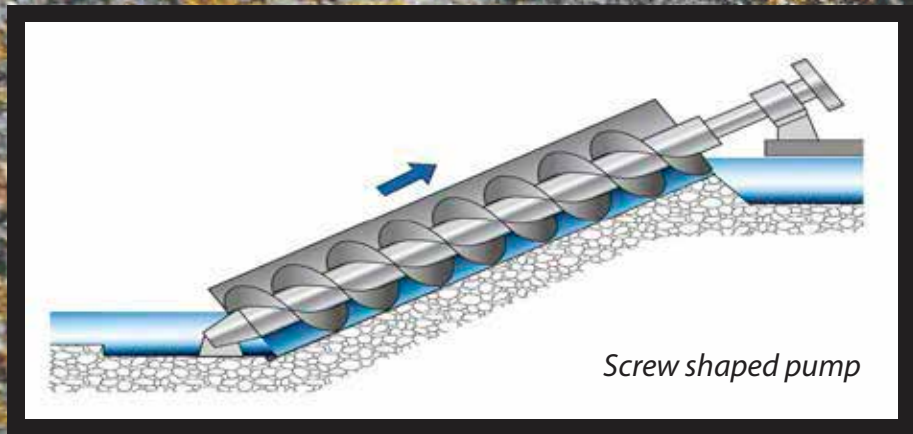
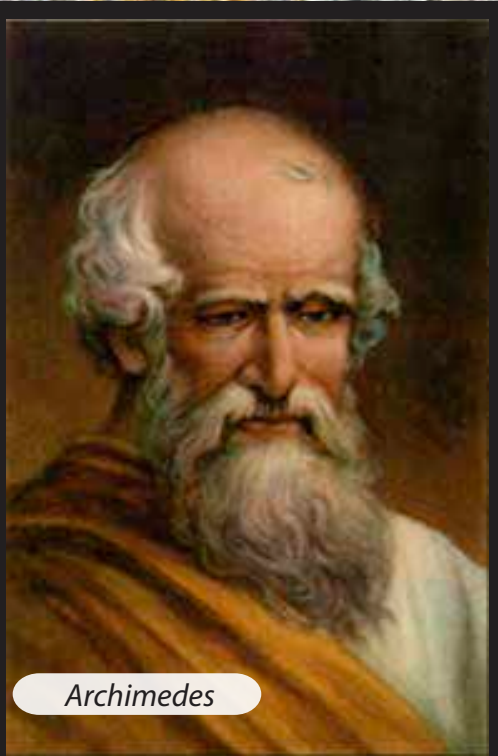
While humans only invented screws thousands of years ago, screws have actually been found in nature for millions of years!

Most screw-shaped **fossils** are **Archimedes** fossils. These fossils are from the Mississippian Epoch of the Carboniferous Period, which means they are over 323 million years old!

Archimedes fossils were formed by tiny (1 mm long) creatures called **bryozoans**. The screw shape was a support for the home structure of their **colonies**.

Did you know?

Archimedes fossils are named after the Greek Scientist and philosopher who designed a screw shaped pump.



Pawsome Plants

Many plants exhibit screw-like shapes, and some even have screws in their name!

Screw Pine

The Screw Pine, or *pandanus utilis*, is native to **South East Asia**. The leaves form a swirly screw arrangement on the tree. The old leaf scars can be seen encircling the stems, leaving a screw-like pattern, hence the name.

Did you know? The pandanus leaves are huge and have been used to make hats, mats, roofs, baskets and paper. They can also give a delicious flavour to food. You may be able to find food cooked with pandanus leaves in many south east asian, such as Thai, restaurants.

*Fun Fact: The screw pine is not in fact a type of pine tree, despite its name! It is actually a type of flowering plant called a **monocot**. Other plants that belong to this group include wheat, rice and sugarcane! It gets its pine name from the **edible** pineapple-like fruit it produces.*

***BEWARE!** These unusual looking trees can hurt you. The edges of the leaves have little red spines that can spike you, if you run your hand the wrong way around them!*

Screwbean Mesquite

The Screwbean Mesquite, or *prosopis pubescens*, is found along streams and valleys in deserts native to southwestern **United States** and **northern Mexico**. It is obvious where the screwbean mesquite gets its name from if you look at its fruit! The seed pods, which are light green and 5-15 cm (2-6 inches) in length, grow in a very tightly coiled screw shape.

*Did you know? Many animals eat screwbean seed pods, but they are also eaten by humans if prepared correctly. Native American groups, such as **The Pimas**, cook the pods in pits over a few days and use them to make high protein meals full of vitamins.*

Fun Fact: Screwbean root bark is used by some Native Americans to prepare a treatment for wounds.



Pawsome Plants

Indian Screw Tree

The Indian screw tree, or *helicteres isora*, is a small tropical plant found in **southern Asia** and **northern Oceania**. It is the fruits of the tree that give it its screw name: they are twisted like a screw with a pointed end.

Did you know? The fruits and roots of the Indian screw tree are full of **nutrients**. They are used in traditional medicine in Asia and South Africa, where they are credited with having value in treatment of a wide variety of conditions, including digestive disorders and infections.

Fun Fact: The screw tree flowers are pollinated by birds with some unusual names. These include the **jungle babbler** and the **white-bellied drongo**.



Screw Tree



Screw Tree



Curly Wurly



Spiralis

Corkscrew rush

The corkscrew rush, or *juncus effusus*, is a soft rush with green blades that twist as they go up. Its origin is uncertain, though **Japan** is thought to be a possibility.

Did you know? There are several different types of the corkscrew rush, including the "Curly Wurly", "Big Twister" and "Spiralis".

Screw-like Shells

Have you ever seen shells that look like screws? If you have, they were probably **Terebridae**, commonly referred to as **auger** shells or auger snails. There are more than 400 known species of terebridae worldwide!

Their long, screw-shaped shells are perfectly formed to protect the insides from harsh conditions and the tremendous pressures at the bottom of the ocean. A team of **engineers** have analysed the shells and have discovered that the screw-shape diverts stress, protecting the soft creature inside.

The researchers believe we may be able to learn from these shells to design buildings that protect the humans inside!



Terebridae



Terebridae



Marine Worm

Did you know?

Terebridae are **predators**. In most species, a poison is used to stun and **immobilise** prey, typically a **marine worm**.

Fun Fact: The common names of the terebridae, the auger shells or auger snails, refer to their resemblance to auger drill bits, commonly used on drills!



Auger Drill Bit

Scrumptious Screws

Want to know of a screw shape which you can eat? **Croissants!** These are fluffy, buttery pastries and their screw shape can be seen in the winding of the pastry. The croissant became the **French** national product in 1920!

Did you know?

*The 'croissant' name comes from its curved **crescent** shape (similar to a crescent moon).*

This crescent shaped pastry has been made since the **Renaissance**, about 600 years ago!

A croissant can be filled with various delicious fillings, such as praline or almond paste. Other variations include **pain au chocolats** and **pain au raisins** (filled with chocolate or raisins), though these are not made in screw shapes.

Did you know?

*In 2013, chef **Dominique Ansel** came up with the '**cronut**'. It is a deep-fried croissant/doughnut combination that became all the rage at his New York bakery.*

The method of making croissants has changed over the years. Previously they were mostly made fresh daily, a survey in 2008 showed that **30-40%** of croissants sold in French bakeries were actually made from frozen dough!

Fun Fact: *January 30th is National Croissant Day!*

Did you know?

*Although many people associated them with France, they actually originate from **Austria!** The French popular belief is that Austrian-born **Marie Antoinette** introduced the pastry to France in 1770 when she became queen. The French then perfected them.*



Marie Antoinette



Purrfect Pasta

Have you ever eaten pasta that looks like this?

If you have, you've been eating a screw! The design of these screw shaped pasta maximise the **surface area** for absorbing flavour and trapping sauce.



Fusilli is one of the most common screw-shaped pasta. The name means 'little spindles' in Italian.

***Fun Fact:** 'Fuso' the root of the word fusilli is also the root of the English word 'fuse'. Fuse, in this case, means a length of material along which a small flame moves to explode a bomb or firework. BANG!*



Rotini are a similar corkscrew shape to fusilli, but have a wider helix. In fact, rotini and fusilli are often interchangeable by name as they are so similar!

Radiatori are modelled after old radiators, just like the name suggests! Invented between the First and Second World War, they are similar in shape to fusilli or rotini, but are generally shorter and thicker with a ruffled edge.



Cavatappi is a hollow screw shape, like a screw shaped macaroni. The word "cavatappi" actually means "corkscrew" in Italian.

***Fun Fact:** Cavatappi can be referred to by several other names, including "double elbows" and "scoobi doo"!*



Super Strawberries

Strawberries are a bright red, juicy fruit, usually consumed either by itself or in foodstuffs like jam, juice, ice cream or milkshakes.

Tiikat drank so much strawberry juice that he dreamt of floating away on a screw-shaped boat over a sea of it!

Here are some fun facts about the delicious fruit:

A strawberry was not actually naturally occurring, they are a hybrid of different fruits and were first bred in France in the **1750s!**

Strawberries are incredibly popular worldwide. In the United Kingdom, "**strawberries and cream**", is a very popular dessert to order at the famous **Wimbledon** tennis tournament.

Did you know?

*The world production of strawberries is about **9.2 million tonnes** (9,200,000,000 kg)! China consumes approximately 40% of the total.*



In Finland there is a small town, **Suonenjoki** known as "**Strawberry Town**" or "Strawberry Capital", as it is filled with lots of strawberry fields. Each July there is even a party called **Strawberry Carnival**, or Mansikkakarnevaalit in Finnish. **Would you like to go?**

The strawberry taste is so popular that **artificial** strawberry flavorings are often used in cosmetic products, such as lipstick.

Did you know?

*Strawberries were a symbol for **Venus**, the **Roman Goddess of Love**, because of their heart shape and red colouring. This is also because the Romans thought strawberries had **medicinal value** and could help with kidney stones.*

Fun Fact: A rather weird use of strawberries was by Madame Tallien, a lady at the court of the Emperor Napoleon in France. She used to bathe in fresh strawberry juice! Madame Tallien used 10kg (22 pounds) of strawberries per bath!



What if?

What if the Industrial Revolution never happened?

Without screws there would probably have been no Industrial Revolution.

The Industrial Revolution was a period of **major change** in the world. It took place more than 200 years ago and changed the way people lived and worked. In earlier days people made products by hand at home or in small workshops. During the Industrial Revolution many **factories** were built. Many things began being made using **machines** powered by **engines**.

The **Industrial Revolution** changed everything about the way the people of the world lived. Without it, it would take a long period of time to **travel** long distances as there would be no **cars** or **airplanes**, as the engine wouldn't have been invented. **Communication** would also be a lot more difficult, as we would have no **computers**, or even **telephones!**

While the Industrial Revolution led to many useful developments there were some negatives. There was an increase in **child labour** at the time, as children as young as 6 were sent to work in factories. There has also been a huge increase in **pollution** due to the Industrial Revolution.

What is clear is that the world would be a very different place if the Industrial Revolution had never happened!



Tii Hee Hee



Can one bird screw in a lightbulb?

No, but toucan!

What do you call a cow who plays the violin?

A MOOsician

Did you hear about the man who was fired from the pasta factory?

He made a fusilli mistakes



BLUE BERRY



What do you call a sad strawberry?

A blueberry.

Why were the strawberries late?

They were trapped in a jam!

What do you call a fossil that just lies there?

Lazy Bones!

Whisker-tingling Words

There are lots of words and phrases used in everyday English language that actually relate to a screw! Here are just some of them:

Screw (noun)

Meaning: A cylinder of wood or metal with a helical ridge around it.

Where does it come from? It originates from the Middle English word 'scrue', from around 1400. This most likely comes from the Middle French word 'escroue' (also meaning screw).

Screw up

Meaning: Mess up. To make a bad mistake, often repeatedly.

Where does it come from? Screwed up originally meant tuned to a high pitch, from the pegs of a stringed instrument. Screw up, in the mess up sense, is first recorded in the December 1942 issue of the magazine Yank.

To have a screw loose

Meaning: To behave in a strange way.

Where does it come from? It goes back to the 1780s when fabrics began to be mass produced during the Industrial Revolution. Any machine that stopped working or produced faulty cloth was said to "have a screw loose" somewhere.

To have one's head screwed on

Meaning: To be wise and sensible.

Where does it come from? It probably refers to the fact that when something is screwed down tightly and straight, there is no danger of it coming loose and therefore not working.





Impawtant Words



Artificial - Made by humans, not nature. Often they copy things from nature, for example flavours.

Buoyancy - A buoyant force is a force on an object making that object rise or move upward. Something is buoyant if it floats.

Clockwise - In the direction in which the hands of a clock turn.

Cold War - A long period of tension between the democracies of the Western World and the communist countries of Eastern Europe. The west was led by the United States and Eastern Europe was led by the Soviet Union. It is called the 'Cold War' because the two sides never went into head to head physical fighting.

Colony (animal) - A group of animals of the same type living together.

Critically Endangered - Any type of plant or animal that is facing an extremely high risk of extinction (disappearing forever) in the wild. If a species, or type, of plant or animal dies out completely, it becomes extinct.

Density - Density is a measurement that compares the amount of matter an object has to its volume. An object with a lot of matter in a certain amount of volume has high density. An object with a little matter in the same amount of volume has a low density.

DNA - Stands for deoxyribonucleic acid. It is in all living organisms, and carries all the information about how a living thing will look and function. DNA is the reason why some of us have brown or blue eyes, for example.

Edible - Able and safe to be eaten as food.

Engineer - Someone who is trained in the use or design of machines or engines, or in other technologies.

Extract - To take out (remove) usually using force.

Fossil - The remains or trace of a living animal or plant from a very long time ago.

Helix - A shape like a spiral staircase. It has a centre line called an axis.

Hybrid - The offspring of two plants or animals that are of different species or breeds.

Immobilise - To stop something being able to move.



Impawtant Words



Lathe - A machine which helps to shape wood, metal and other materials.

Lever - A basic tool used to lift or pry things open. It has a long, sturdy body that rests on a support called a fulcrum, where the lever pivots. A seesaw and a crowbar are types of lever.

Middle Ages - A time period in European history from around 1000 to 1453.

Medicinal Value - Able to help cure disease or relieve pain.

Nutrients - Something in food that helps people, animals, and plants live and grow.

Philosophy - The study of basic ideas of knowledge, what is right and wrong, and the value of things. It is a set of ideas about how to live.

Pollinate - To move or carry pollen to a plant, causing the seeds to be fertilized.

Predators - An animal who kills and eats other animals (its prey).

Pulley - A simple machine that makes lifting something easier. A pulley has a wheel or set of wheels with grooves that a rope or chain can be pulled over.

Revolution - When the people in a country overthrow a government by force, and then set up a new government. This is done if the people are not happy with the current system, and want instant change. It can also just be a period of sudden dramatic change, such as the Industrial Revolution.

Roman Empire - A powerful and important civilisation that ruled much of Europe for nearly 1000 years, from 509BC to 45BC.

Standardise - To bring something or make something fit to a standard, to make sure they are consistent in, for example. size, weight, quality, strength or shape.

Surface Area - A measurement of all the space that the surface of a shape takes up. It is the total of all the areas of each of the sides of an object.

Zero-gravity - Gravity gives us weight on Earth, stopping us from floating away. It is a pull-ing force that attracts objects. In space there is almost no gravity, so it is called zero-gravity.