ArtCare

Coughs and sneezes!

A creative and historic exploration of the story of the Common Cold Unit from the archives at Salisbury District Hospital

ArtCare

ArtCare is the charitably funded arts in health service at Salisbury District Hospital for 30 years.

Our current projects include the following:

- engaging with our community through creative activities, healthcare topics, science and local history projects
- organising visual arts, performing and participatory events to inspire staff, patients and visitors to the hospital
- curating temporary exhibitions and acquiring permanent artworks for display around the hospital site and advising on interior design

We also care for Salisbury District Hospital's archives and historical collections. With items dating back to the building of Salisbury General Infirmary in 1766; this resource provides an exciting insight into Salisbury's past health care, science and innovations.

Visit our website:
www.salisburyhealthcarehistory.uk
Scan the QR code for more

This limited edition booklet is produced for British Science Week and highlights the story of Harvard Hospital / Common Cold Unit. It describes the research behind the clinical trails that saw 20,000 volunteers visit Salisbury to catch a cold!

Inside you'll find:

- Origins of Harvard Hospital / Common Cold Unit
- Volunteering at the Common Cold hospital
- Testing: coughs and sneezes spread diseases
- Discovery of the Coronavirus
- Colouring pages
- Virus and bacteria facts and figures

Funded by British Science Association

BRITISH SCIENCE ASSOCIATION

Origins of Harvard Hospital/ Common Cold Unit

The building was erected during World War 2 with funding from US Red Cross. It was used by the US Army and Harvard University for the study of topics that arose from war time conditions - such as epidemics, nutrition, sanitation and psychology of shell shock. On 22nd September 1941 the portable buildings arrived from America.

The site was chosen due to the proximity of the southern headquarters of the US Army at Odstock as well as Salisbury railway and supply connections. It was a very short distance too from the 158th Hospital site (present day Salisbury District Hospital) As seen in the aerial photograph from the early 1980s below. Harvard Hospital seen top left across the fields on the horizon.

The US army used the site a facility for blood transfusions during World War 2.

After the war it was donated back to the UK and taking charge of the site was Dr Christopher Andrewes (Sir) for the study of colds.

What were they looking for?

As well as identifying disease, treatment, searching for a vaccine and the relationship between stress and cold symptoms, their research also examined questions such as:

- How are people infected?
- What sort of contact causes this?
- Does sitting in draught make your cold worse?
- Why are colds more common in winter?

'We have learnt a good deal about the control of the major killing plagues – cholera, typhus, typhoid, plague, yellow fever and small-pox; we no longer go about, at least in this country, in mortal fear of these infections. We can, therefore, afford to turn our attention to the lesser plagues, the miseries and inconveniences, such as influenza, sore throats and colds. ' Dr Andrewes, London News 14th February 1948

The first trial began on 17th July 1946.

Staying at the unit

The hospital comprised of 6 huts, divided into two, to form 12 volunteer flats. In each flat a pair of volunteers stayed for 10 days. They were isolated from other humans except doctors and nurses who wore gowns and masks.

Wednesday – arrive, examination and x-ray, no treatment for 3 days as quarantine from bringing any colds with them
Saturday – drops were administered to the nose. For the next week pulse, temperature and symptoms were recorded in a diary
End of the 10 day stay - compare notes between subjects

Facilities

Rooms included radio, telephone, books, games, a small dining space, kettle, cutlery, crockery and bedroom. Food was delivered to a box outside the door. Volunteers were allowed out for walks outside but needed to avoid people, places and vehicles. This was why the site at Harvard Hospital was ideally placed, on the outskirts of the city with proximity to transport but isolated enough to limit contact.

The landscape of the surrounding area in part helped to recruit volunteers who could enjoy fresh air and countryside. Food rationing too, which was still in place in the early years, also meant that a cooked breakfast, lunch and evening meal was an attractive perk.

Originally everyone had to wash their hands in a bowl outside the flat but the cold winter of 1946-1947 meant these facilities were frozen so this had to change.

The opportunity to volunteer was widely advertised as 10 day free holiday with travel expenses for those aged 18-50 years; plus £1.25 a day pocket money.

Who were these volunteers?

Most were university students during holiday time but this meant that during term-time there was a lack of subjects. Interestingly ICI gave their employees from the Wills Cigarette Factory full pay to come 'on holiday' to the unit. And the couple above are on their honeymoon!

Staff

The Medical Research Council employed medical staff, laboratory technicians and clerical personnel. The Ministry of Health supplied the catering and maintenance teams as well as a matron.
The man in the protection outfit above is the radio repair man. He would wear the hood to protect himself whilst visiting rooms of volunteers.

Testing

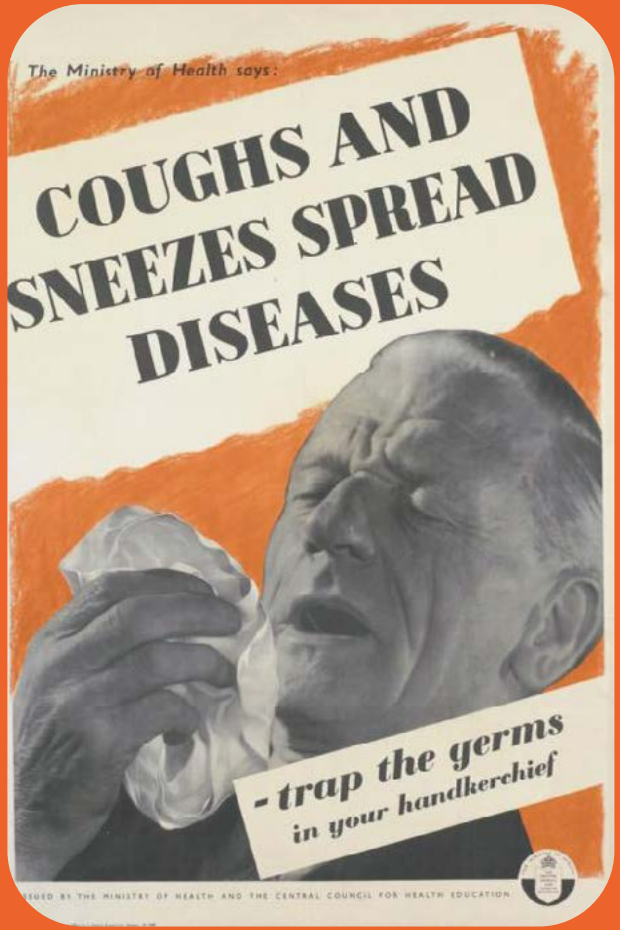
By 1948 they had already received 500 volunteers. Who were either given a saline solution (placebo with no infection) or a virus solution. From this second group around 50% got colds, runny noses after 2-3 days incubation.

Coughs & sneezes spread diseases

The tests looked at how heavy particles produced by sneezes fell quickly to the ground, but small ones lose water by evaporation and could float in the air for an hour or two.

They also looked at how the virus spreads and saw that shaking a handkerchief was a very effective germ distributor! Therefore, studies went into impregnating these with a disinfectant.

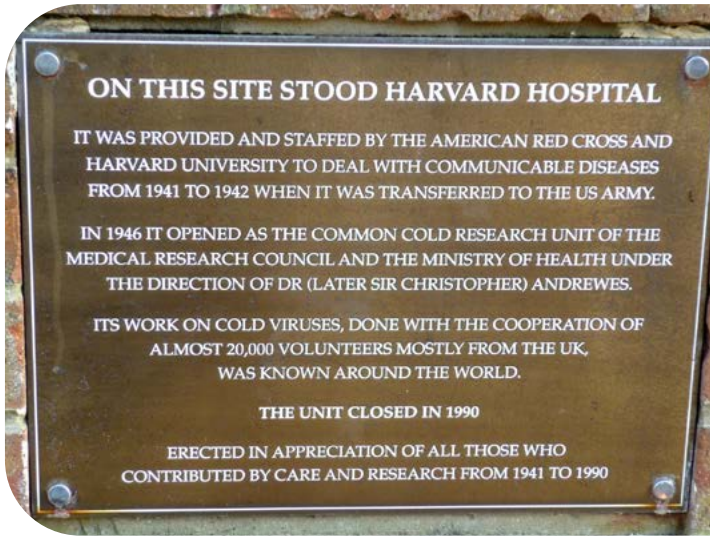
Research went into air hygiene treatment of respiratory diseases, effective ways to destroy these with the use of ultraviolet lamps and chemical mists.



Transmission of disease

An experiment into contact was described when scientists set running a fluorescent dye from the nose of one of the lab staff whilst they played cards around a table for a short while. After turning off the lights they discovered the dye on the cards, on hands, across the table and spread throughout the room.

David Tyrrell



David Tyrrell (1925-2005) was the researcher who led the Common Cold Unit from 1957 and published over 1000 papers on their discoveries.

This was one of the biggest long term research projects; initially looking for viruses it became about vaccines, prevention, immunity and also the psychological factors and whether stress made subjects more susceptible to infection or illness.

In the 1980s their work became overshadowed by the AIDS crisis and the unit eventually closed in 1990.

During its time over 20,000 volunteers took part as guinea pigs and this work identified that the were 100s of different types of cold viruses; Rhinoviruses, Coronaviruses and Parainfluenza.

Discovering coronavirus

Covid-19 is a new disease but is caused by a type of coronavirus that was first discovered by research done at the Common Cold Unit, Salisbury in 1964

During Dr Tyrrell's trials in Salisbury, he took samples from unwell subjects at a boys' boarding school. He theorised, that because the particles from the disease were so small, the illness must be caused by a virus. But these samples behaved differently to ones he'd seen before, such as Rhinovirus, as they became inactive in fat solvent ether.

However, technology was not available and this meant it was difficult to study the details without an electron microscope which was still being developed.

He turned to colleagues for help, Tony Waterson from St Thomas Hospital and scientist June Almeida who was expanding the range of electron microscope to far greater limits.

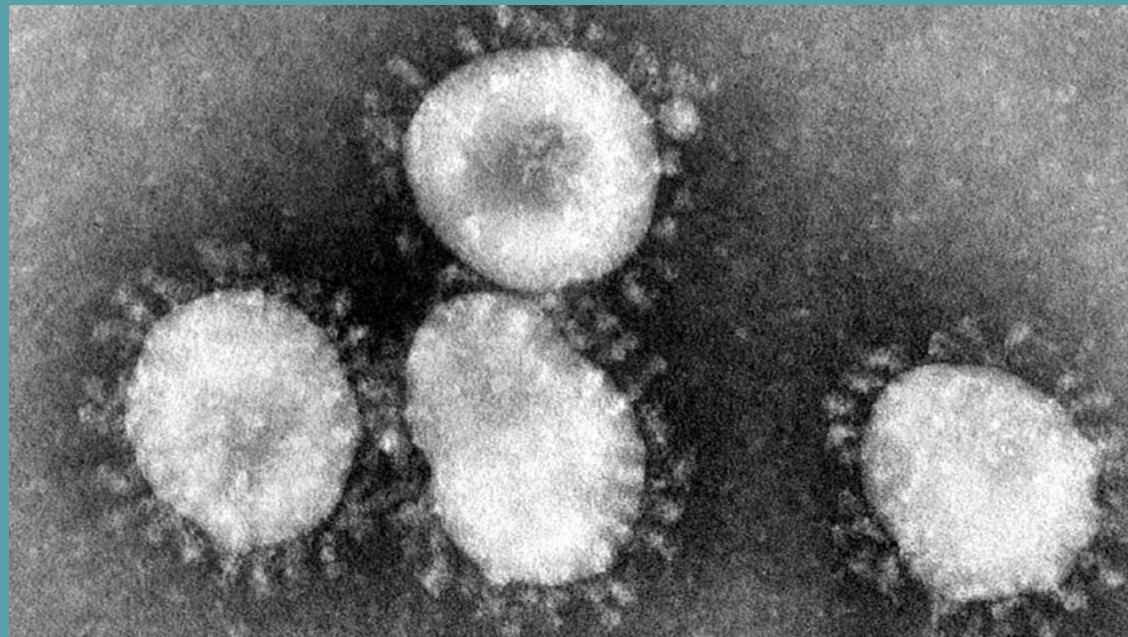
Samples were prepared and sent with coded labelling to encrypt the origins and see if Tyrrell's colleagues agreed with his theories.

June Almeida used the latest techniques to study them and identified them all a viruses. The sample labelled **B814** particles, from the boys' school, looked like influenza but were not the same.

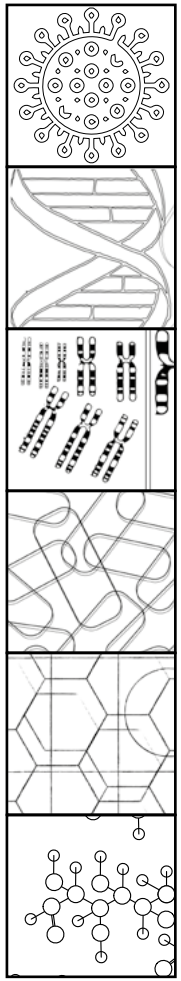
June stated she has seen something similar before but her paper had been rejected by the scientific community because 'the images she produced were just bad pictures of influenza virus particles'

Together they had found a new virus. But what should it be called?

> *'We looked more closely at the appearance of the new virus and notice they had a kind of halo around them…. The name coronavirus was born.'*
> *(*Tyrrell, Cold Wars)



Key to the following colouring-in pages - afterwards you can use these as origami paper - see instructions on our website



Coronavirus: The projections on the outside are spike proteins that allow the virus to latch onto host cells and them open for infection.

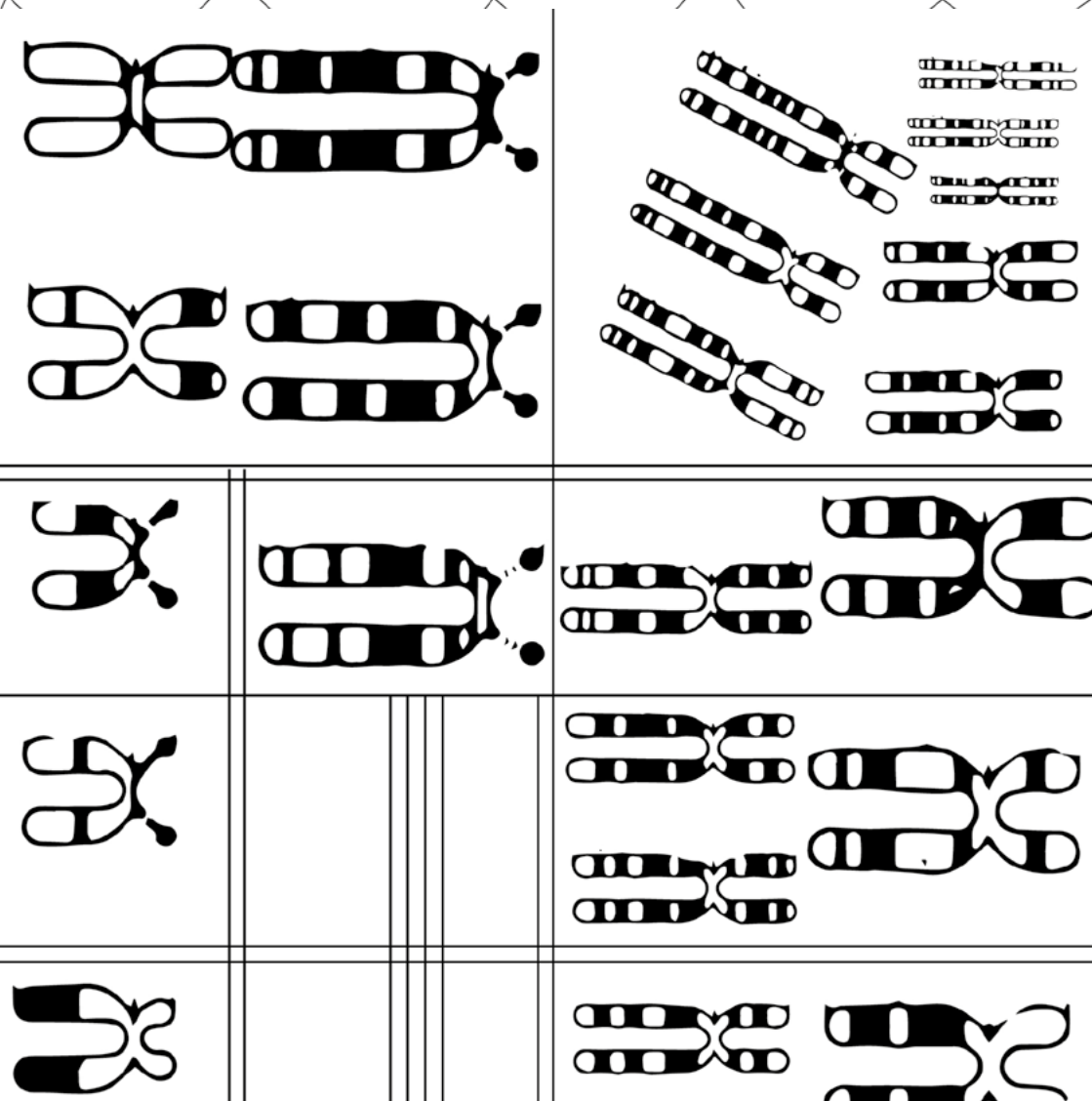
DNA helix: The deoxyribonucleic acid (DNA) double helix which stores the genetic code was discovered in 1953 by James Watson and Francis Crick.

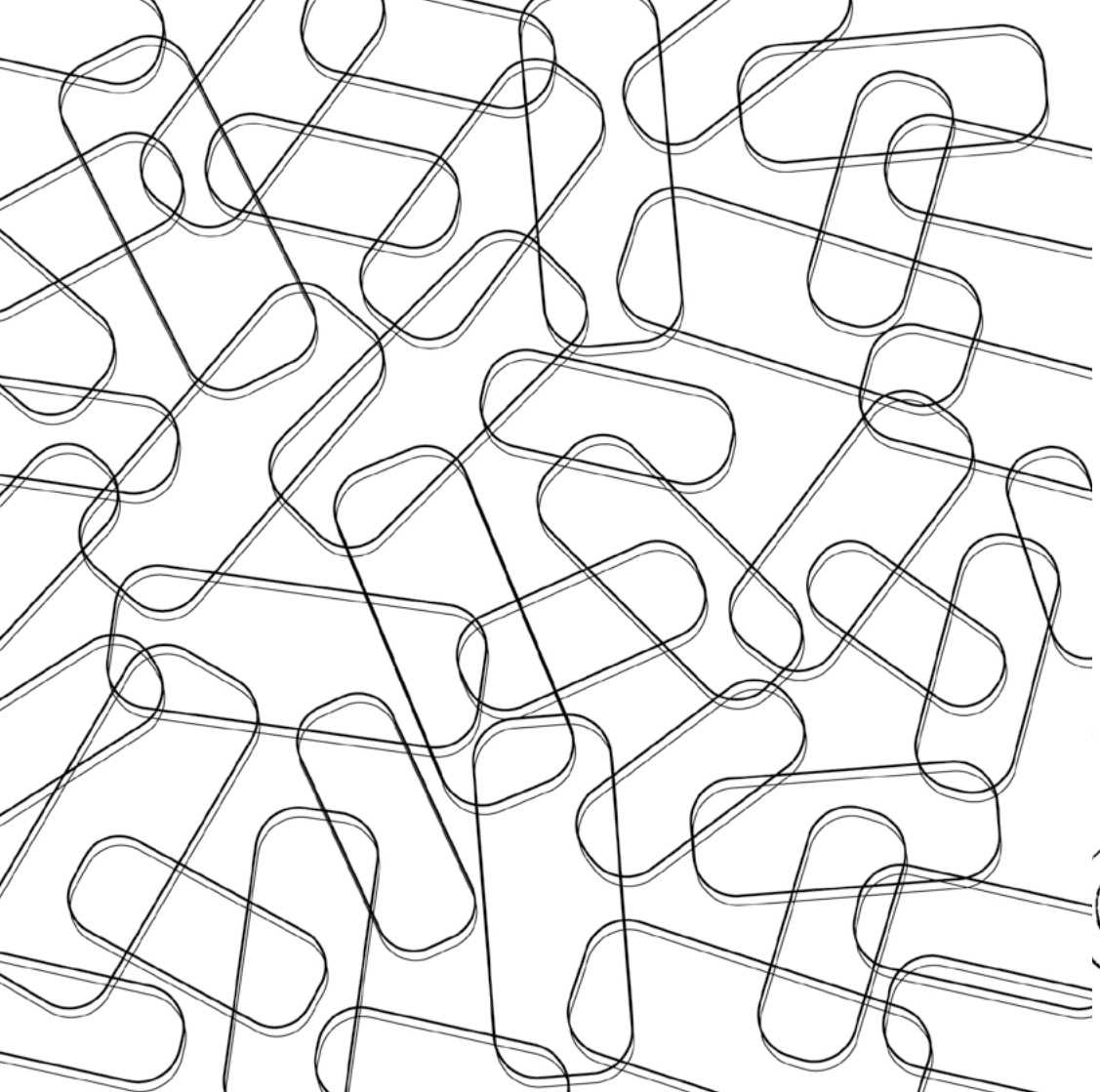
Chromosomes: Humans have 23 pairs of chromosomes. Each parent contributes one chromosome to each pair, so children get half of their chromosomes from their mothers and half from their fathers.

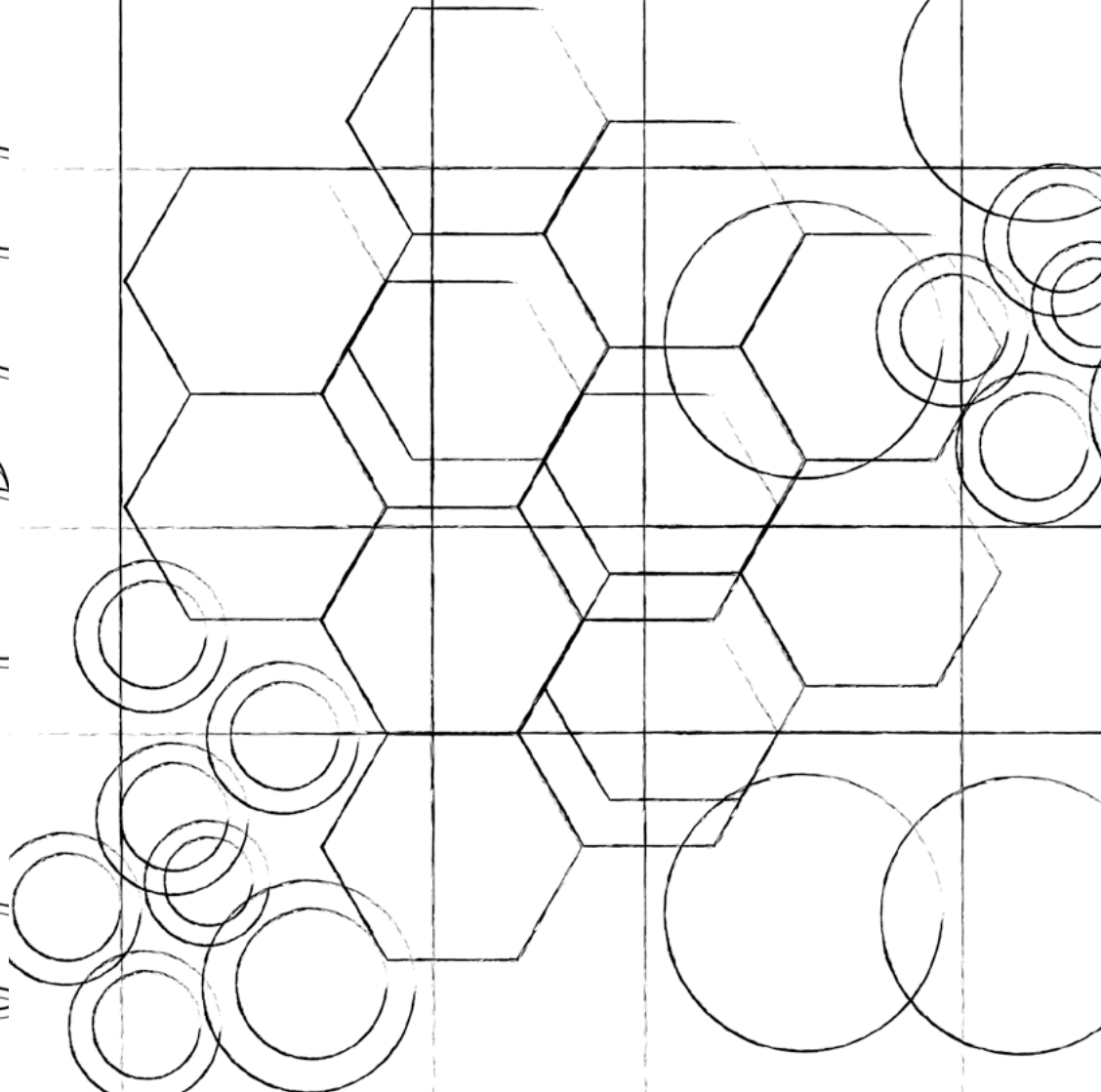
Bacteria: Bacillus, taken from the Latin word "stick" is a rod-shaped bacteria. Bacteria are micro-organisms that inhabit every environment on Earth: in soil, water, organic material, animals, humans and plants.

Organic building blocks: This design is inspired by organic building blocks that play a fundamental role in medicinal chemistry, organic chemistry, and material chemistry.

Glucose: This design is inspired by the molecular structure of Glucose which is naturally occurring and is found in fruits and other parts of plants.







Bacteria are about 100 times bigger than viruses and are classed as a living organism which can reproduce without a host cell.

Viruses are not a living cell, they are a strand of genetic information (DNA or RNA) inside a protein coat. They can only reproduce inside a living cell.

Common viruses are flu (influenza) or chicken pox.

Antibiotics can be used to fight bacteria but do not work on viruses.

Relative size:
If coronavirus was the size of a football, then a human being would be as tall as the planet earth!

What does it mean?

Coronaviruses get their name from the shape of the virus, when viewed through a microscope, that has a ring that looks like a crown (Corona from the Latin word for crown)

Coronaviruses are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). COVID-19 is a new strain that has not been previously identified in humans.

COVID-19 - 'CO' stands for corona, 'VI' for virus, D' for disease, 19 for 2019.

Pandemic - Describes when a disease is widespread over a whole country or the world

Epidemic - lots of cases of an infectious disease in a community at a particular time

Clinical trial: A clinical trial compares the effects of one treatment with another. It may involve patients, healthy people, or both. Clinical trials help doctors understand how to treat a particular illness.

Vaccine - is a substance used to stimulate the production of antibodies and provide immunity against one or several diseases.

Antibodies - By receiving a very small dose of an illness the human body creates antibodies - Antibodies combine chemically with substances which the body recognizes as alien, such as bacteria, viruses, and foreign substances in the blood - which then prevent the person getting a more severe version of the illness.

Inoculation - This is the means of receiving a vaccine which is often in the form of an injection

Protection: Since vaccines were introduced in the UK, diseases like smallpox, polio and tetanus, that used to kill or disable millions of people, are either gone or seen very rarely.

Did you know?
The word vaccine comes from the name for the cowpox virus, 'vaccinia' which was the source of the smallpox vaccine

Where to explore next:

www.artcaresalisbury.uk
Creative resources and activities for all ages

www.salisburyhealthcarehistory.uk
History archives, stories, activities and education resources based on the science, medicine and local history of Salisbury

www.eventbrite.co.uk/o/artcare-28126838233
Follow us on Eventbrite to hear about all our community events, talks and workshops

www.britishscienceassociation.org
News, grants, science festivals and more

www.britishscienceweek.org
Activity packs and details about events during British Science Week in March each year

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