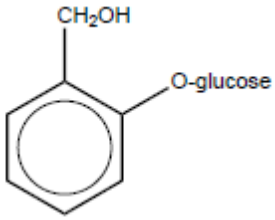
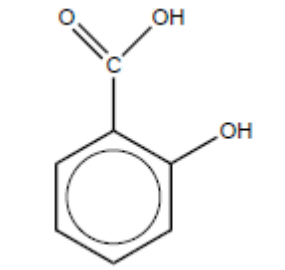
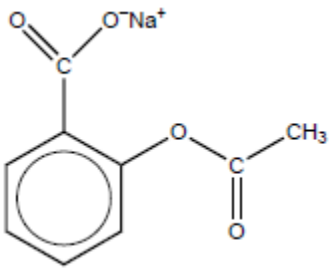
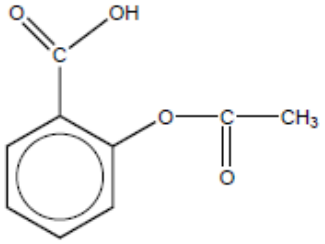
The aspirin story: a timeline

Date	Development
1763	Edward Stone (a clergyman) read a paper to the Royal Society of London: 'An account of the success of the bark of the willow in the cure of agues'. He had collected observations from around the country on the effect of willow bark on the relief of fever due to agues (malaria).
1830s	A Scottish physician found that extracts of willow bark relieved symptoms of acute rheumatism.
1840s	Organic chemists working with willow bark and flowers of the meadowsweet plant, *Spiraea*, isolated and identified the active ingredient as salicin (*Salix* = Latin word for willow).  **Salicin (2-(hydroxymethyl)phenyl β-D-glucopyranoside)**
1870	Marceli von Nencki of Basel demonstrated that salicin was converted into salicylic acid in the body.  **Salicylic acid (2-hydroxybenzoic acid)** Salicylic acid was then given to patients with fevers and their symptoms were relieved. However, the compound caused severe irritation of the lining of the mouth, gullet and stomach.
1875	Chemists made sodium salicylate and gave that to doctors to try on their patients. It still worked to help reduce pain and fever and did lessen the irritation but it tasted awful!  **Sodium salicylate** **(Sodium 2-hydroxybenzoate)**

	In the large doses used for treating rheumatism, sodium salicylate frequently caused the patient to vomit.
1890s	Felix Hoffmann of the Bayer Company in Germany made aspirin, which was found to have good medicinal properties, low membrane irritation and a reasonable taste. This followed the publication of news about the temperature-reducing properties of acetanilide which immediately spurred a chemist at Bayer's dyeworks to make some derivatives:  **Aspirin** **(2-ethanoyloxybenzenecarboxylic acid)** He called the new medicine aspirin ('a' for acetyl – the systematic name of the compound at the time was acetylsalicylic acid and 'spir' for *Spiraea*, the meadowsweet plant). Nowadays, chemists use the systematic name, ethanoyl, instead of acetyl but the trivial name acetyl is still very common.
1898	Aspirin was sent for clinical trials, Bayer manufactured the medicine and patented the process.
1915	During World War I, the British wanted aspirin, but it was made by the Germans (Bayer & Co). So the British government offered a £20,000 reward to anyone who could develop a workable manufacturing process. This was achieved by George Nicholas, a Melbourne pharmacist, who subsequently gave his tablet the name 'Aspro'.
1932	Invention of the gastroscope leads to evidence that aspirin was associated with irritation of the lining of the stomach.
1956	Introduction of paracetamol (Tylenol® in the US) as an alternative analgesic that did not have the same side-effects as aspirin.
1974	The International Aspirin Foundation was founded to increase knowledge and understanding of aspirin.
1982	Introduction of ibuprofen, which further impacts sales of aspirin as an analgesic .
1982	The Nobel prize in physiology or medicine was awarded for work on prostaglandins and related compounds. John Vare, who shared the prize with two Swedes, discovered that aspirin and some other painkillers and anti-inflammatory drugs (such as ibuprofen) inhibit a key enzyme in the prostaglandin synthetic pathway. They therefore stop your body making prostaglandins, some of which stimulate pain receptors and cause inflammation. For more information see: bit.ly/3nTXS1M
1986	Aspirin is no longer recommended to be given to children due to evidence of a link to Reye's syndrome – a rare disorder that can cause severe liver and brain damage in children and young adults.
1988	Cardiologists start using aspirin with patients at risk of having a heart attack. An academic study makes a link between colon cancer and rectal cancer prevention and aspirin.
1990s	More than 10 million kilograms of aspirin are made in the US each year!
2002	*BMJ* published a paper confirming aspirin's role in preventing death, heart attacks and stroke in high-risk patients: bit.ly/3VV8ZEI

2015	US Preventative Services Task Force recommends aspirin for the prevention of cardiovascular disease and cancer.
2019	The International Federation of Gynaecology and Obstetrics recommend that women who are at high risk of pre-eclampsia during pregnancy should take a low dose of aspirin after week 12.
2020	According to *The Lancet*, aspirin is still one of the best options for secondary prevention of cardiovascular disease.

See also other online resources such as:

- **The aspirin story – from willow to wonder drug** (2017), from the British Journal of Haematology: bit.ly/3nWfdqU
- **Travelling Through Time with Aspirin, a healing companion** (2010), from the European Journal of Inflammation: bit.ly/3MlFKr7