# The chemistry of the coronation crowns

COMPOUND INTEREST

## St Edward's Crown

**Weight**

**2.23 kg**

**Metals**

Au GOLD

St Edward's Crown is the official coronation crown with which the monarch is crowned during the coronation ceremony. The crown was made in 1661.

### 444 gemstones

| | | |
|---|---|---|
| 345 | Aquamarine | Beryllium aluminium silicate with iron(II) ion impurities |
| 37 | White topaz | Silicate mineral with aluminium and fluorine |
| 27 | Tourmaline | Boron silicate mineral; variable composition |
| 12 | Ruby | Aluminium oxide with chromium ion impurities |
| 7 | Amethyst | Silicon dioxide with iron ion impurities |
| 6 | Sapphire | Aluminium oxide with titanium and iron ion impurities |

The crown also contains 2 jargoons, 1 garnet, 1 spinel and 1 carbuncle.

## Imperial State Crown

**Weight**

**1.06 kg**

**Metals**

Au GOLD

Ag SILVER

Pt PLATINUM

The Imperial State Crown is exchanged for St Edward's Crown at the end of the coronation ceremony. The crown was made in 1937.

### 3,174 gemstones

| | | |
|---|---|---|
| 2,868 | Diamond | Allotrope of the element carbon |
| 273 | Pearl | Calcium carbonate |
| 17 | Sapphire | Aluminium oxide with titanium and iron ion impurities |
| 11 | Emerald | Beryllium aluminium silicate with chromium ion impurities |
| 5 | Ruby | Aluminium oxide with chromium ion impurities |
| 1 | Spinel | Magnesium aluminium oxide with chromium impurities |

## Queen Mary's Crown

**Weight**

**590 g**

**Metals**

Au GOLD

Ag SILVER

Queen Mary's Crown will be used to crown the queen consort. The crown was made in 1911. It is the first time a queen consort crown has been reused since 1727.

### 2,200 gemstones

| | | |
|---|---|---|
| 2,200 | Diamond | Allotrope of the element carbon |

**Koh-i-Noor diamond**



**105.6 carats (21.12 grams)**

**Cullinan III diamond**



**94.4 carats (18.88 grams)**

The largest diamond set in Queen Mary's crown was the Koh-i-Noor diamond. However, due to continued controversy over its ownership, for the upcoming coronation the crown is being reset with Cullinan III, IV and V, diamonds cut from the Cullinan diamond. Cullinan II is set in the Imperial State crown.