# HOW WE MAKE LIGHT



# **@canlightsource**





#### I. Electron Source

Bursts of electrons are injected into an ultrahigh vacuum stainless steel pipe.



## 2. Linear Accelerator (linac)

Microwave energy increases the energy of the electrons. At this point, the electrons are travelling at 99.9998 percent the speed of light.



## **3. Booster Ring**

The electron beam is transferred from the linac to the booster ring, where the energy of the electrons increases by an order of magnitude.



#### 6. Beamlines



Light travels through the steel beamline pipe until it reaches the end of the line.





## 4. Radio Frequency (RF) Cavity

RF cavities give a highenergy kick to the electrons as they circulate around the rings to raise their energy.



## 5. Storage Ring

Magnets inside the ring bend the path of the electron beam to release light. Insertion devices bend the electron beam to produce more intense light traveling to the beamlines.



Samples are placed at the end of the beamline. Every beamline looks a little different.



Scientists collect their data on nearby computers.



CanadianCentre canadienLightde rayonnementSourcesynchrotron