

Active Galaxies

Week 24

Very active central nucleus

Emits Radio, IR, UV and X-rays

Supermassive black hole at the centre (as with most galaxies)



The emissions are much more than just starlight

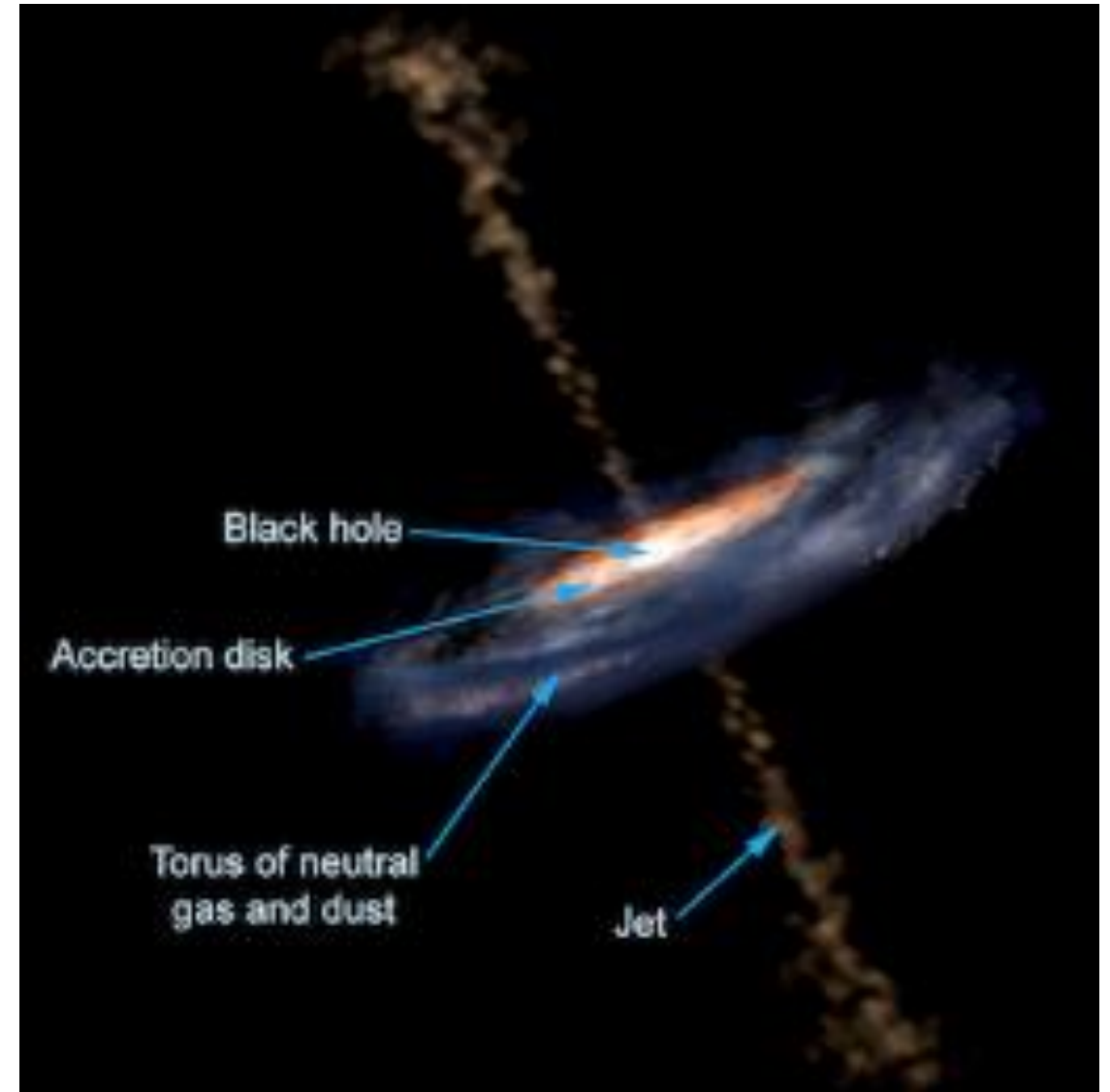
The core is much brighter than the rest of the galaxy



The black hole accretes material from the galactic centre

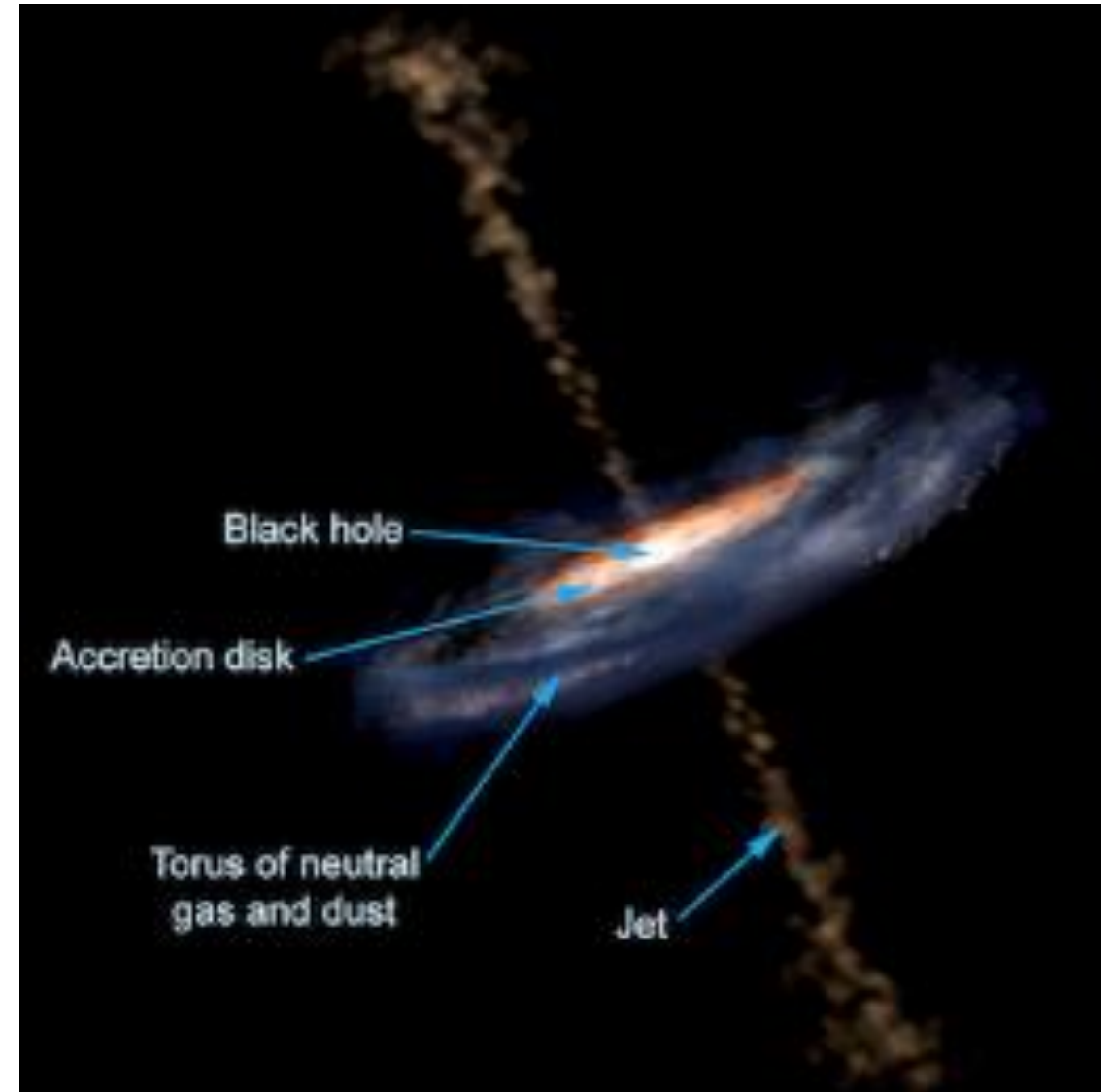
As the material spirals in, it gains heat.

That energy is given out in 'jets' of EM radiation



The jets travel at nearly the speed of light

They are detected as radio waves or other EM waves



Active Galaxies are often called AGNs (active Galaxy Nuclei)

4 types of AGN

- Radio Galaxy
- Seyfert Galaxy
- Quasar
- Blazar

Radio Galaxy

- Mainly Elliptic
- 1 million times more radio waves emitted than from a normal galaxy
- Discovered in the 1950s

Seyfert Galaxy

- Spiral Galaxy
- Compact but bright centres
- Strong in IR and X rays

Quasar

- Quasi-stellar radio source
- Compact and look like stars
- Very far away – probably the furthest things we've found
- Discovered 1963

Blazar

- Like quasars, they appear to be a star
- Much closer than quasars
- Discovered in the 1970s

Variable nature of AGNs

- The intensity of ray and the type of ray varies dramatically over a few days

Quasars

- Found using radio telescopes
- A spectral analysis reveals hydrogen lines (see next week's work)
- The lines are highly redshifted (see next week's work), showing that quasars are at the most furthest point of the observable universe