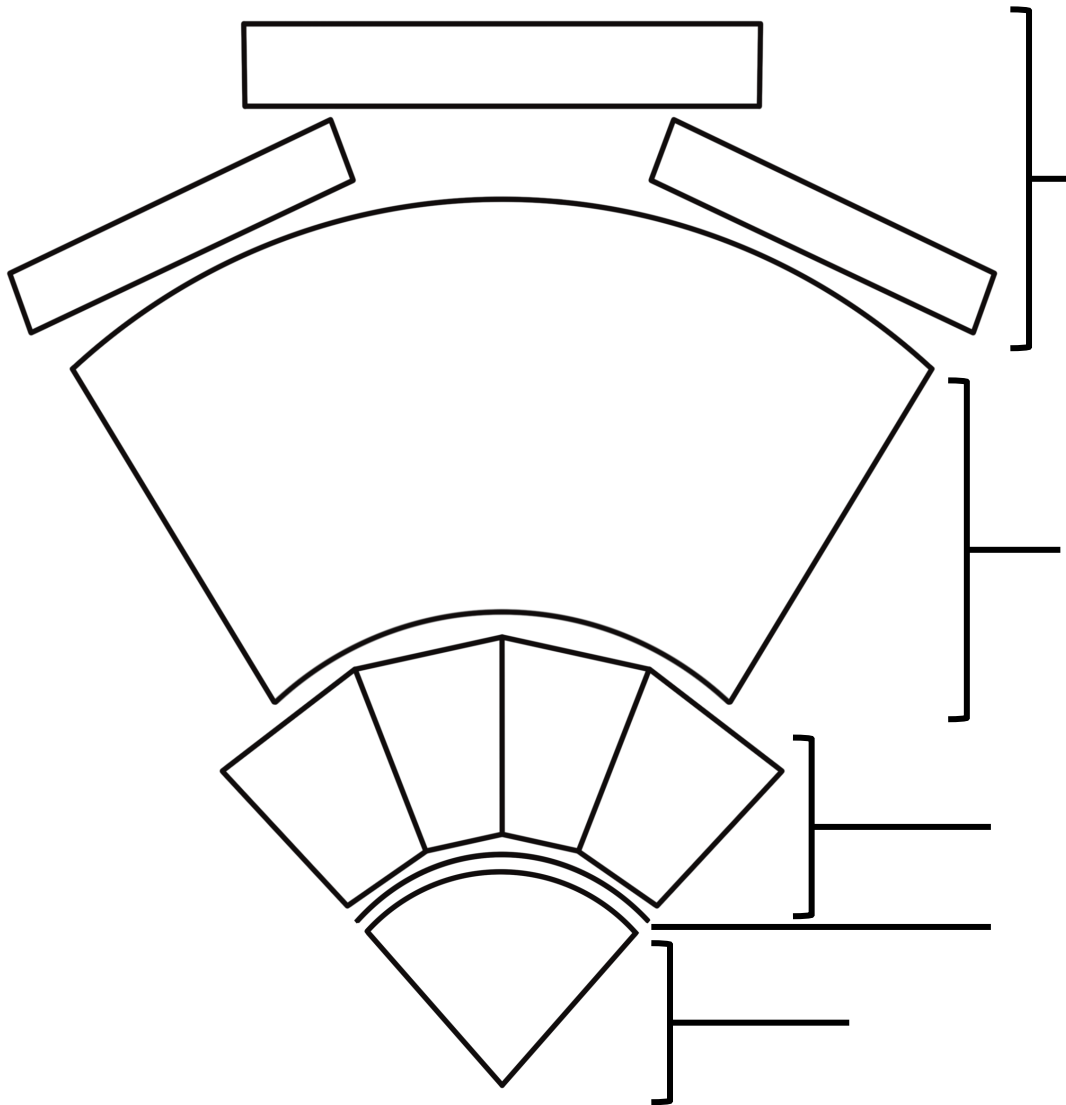


# Particle Detectors



Label the diagram of the detector, and describe what the different sections do below.

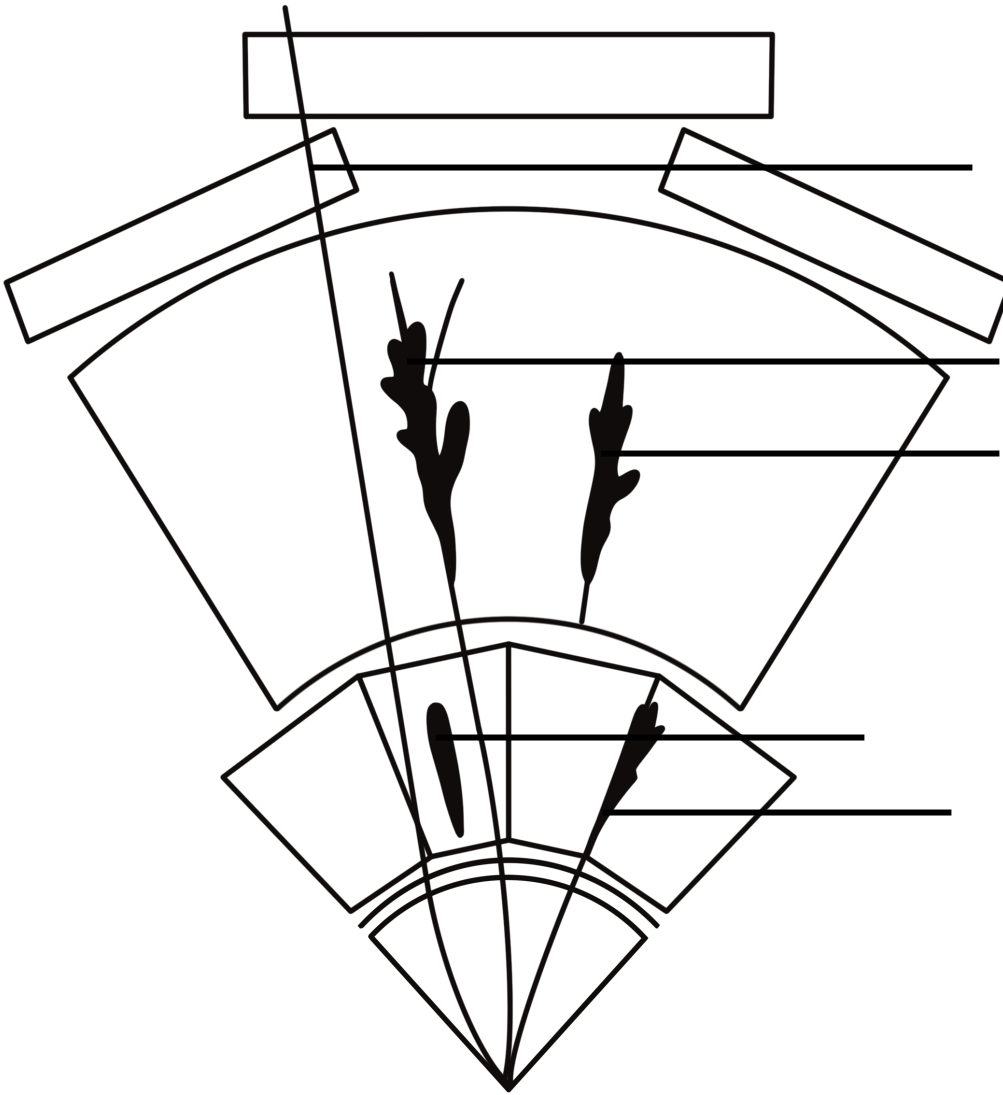
Inner detector: \_\_\_\_\_

Electromagnetic calorimeter: \_\_\_\_\_

Hadronic calorimeter: \_\_\_\_\_

Muon spectrometer: \_\_\_\_\_

Magnet: \_\_\_\_\_



Label the different particle tracks, and describe how you know it's that particle.

Electron: \_\_\_\_\_

\_\_\_\_\_

Proton: \_\_\_\_\_

\_\_\_\_\_

Neutron: \_\_\_\_\_

\_\_\_\_\_

Photon: \_\_\_\_\_

\_\_\_\_\_

Muon: \_\_\_\_\_

\_\_\_\_\_

What would it look like if a neutrino (a particle that doesn't interact with any of the materials) went through the detector? How would we know it had been there?

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How can you tell the difference between a positively and negatively charged particle in the detector?

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How does the example of a particle detector illustrate how scientists look for new things?

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Task: You need to design some type of key that helps non-scientists work out which particle has gone through the detector, without knowing anything about particle detectors. It could be a flow chart, a checklist, or something else altogether – the only criteria is that it needs to be able to identify all the particles shown on the last page. Once you've designed a key, try to see if you can ID which particles are which in a real ATLAS event!