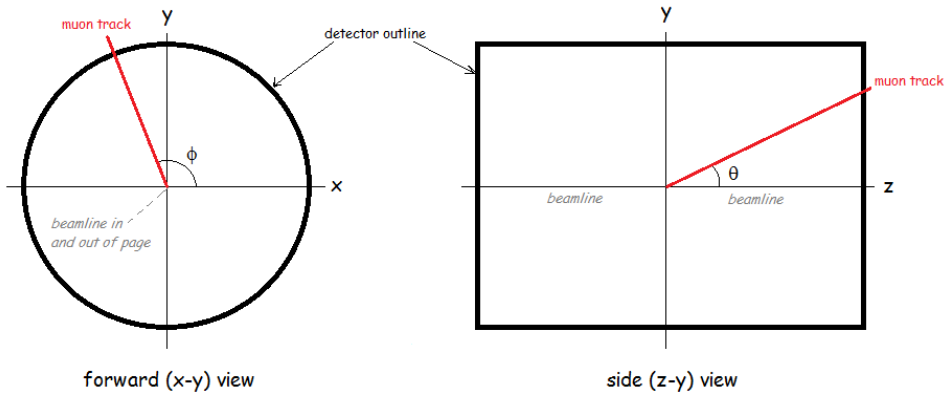


Operator(s): \_\_\_\_\_

Experiment (check one): \_\_\_ATLAS \_\_\_CMS      Data set: \_\_\_\_\_

Materials needed: internet-connected computer, protractor

Measurements to make:



Tallies for angle  $\phi$  (place tick mark for each angle of a muon track measured closest to one of these below):

Angle (degrees)	Tick marks	Angle (degrees)	Tick marks
10		190	
30		210	
50		230	
70		250	
90		270	
110		290	
130		310	
150		330	
170		350	

Tallies for angle  $\theta$  (place tick mark for each angle of a muon track measured closest to one of these below):

Angle (degrees)	Tick marks
10	
30	
50	
70	
90	
110	
130	
150	
170	

Make histograms from your own data!

Phi ( $\phi$ ):

10																			
9																			
8																			
7																			
6																			
5																			
4																			
3																			
2																			
1																			
	10	30	50	70	90	110	130	150	170	190	210	230	250	270	290	310	330	350	

Angle (degrees)

Theta ( $\theta$ ):

10									
9									
8									
7									
6									
5									
4									
3									
2									
1									
	10	30	50	70	90	110	130	150	170

Angle (degrees)

Contribute to the World Wide histograms!

Add the tallies for each angle in both measurements for your class and add them to the Google sheet indicated in the W2D2 site at <http://tiny.cc/w2d2-2017>.