

# Transiting Planet Experiment Worksheet

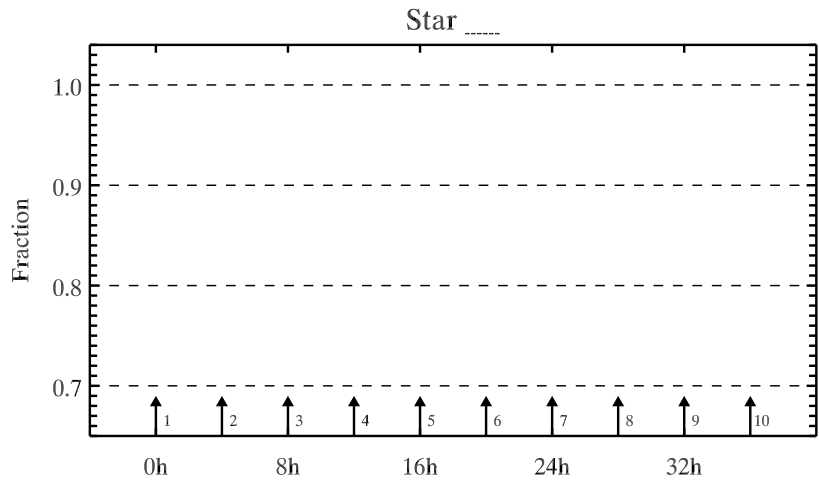
Created by Anil Seth and Andrew West, updated Feb. 11, 2011

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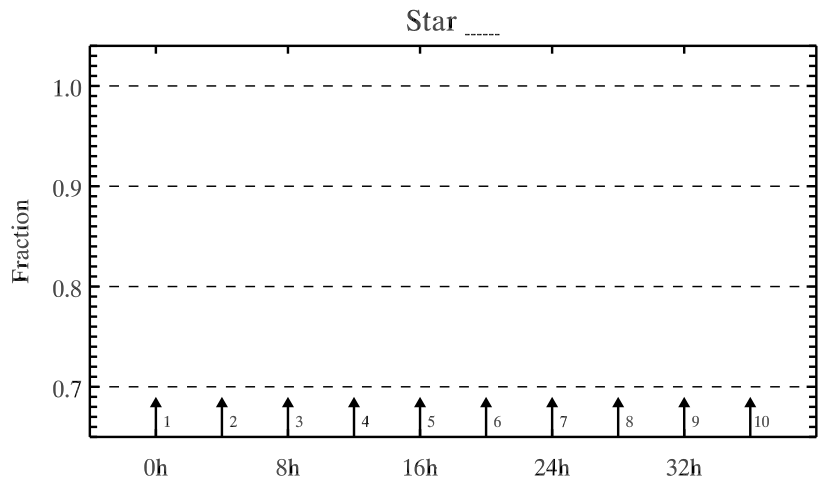
For each of the five observations presented in class:

- 1) Write the light meter value of the unobstructed star in the “Value” column in the first row.
- 2) Record data at each time step in the units from the light meter under “Value”.
- 3) Calculate the fraction of the total light of the star seen at each time step and record in second column.
- 4) Plot the second column in the plot to the right.

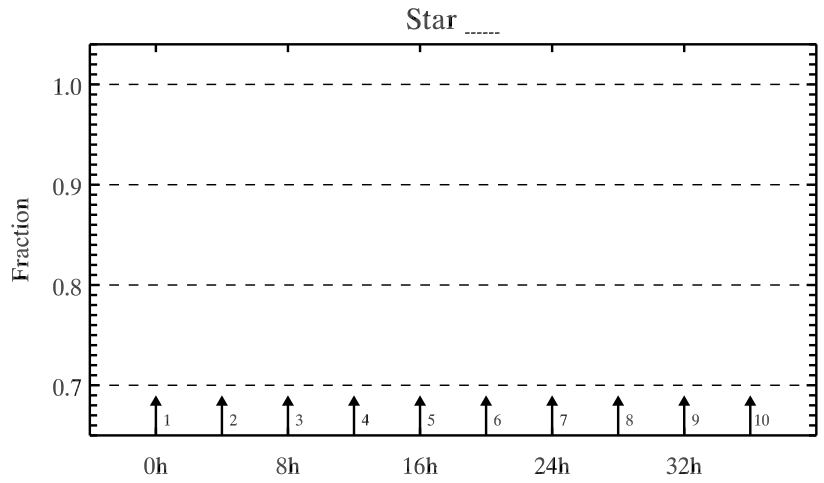
Obs. #	Value	Fraction
Star		1.00
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		



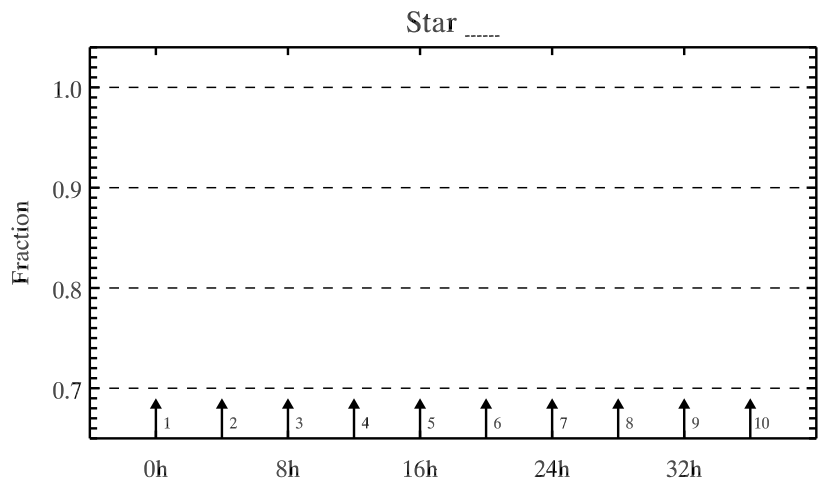
Obs. #	Value	Fraction
Star		1.00
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		



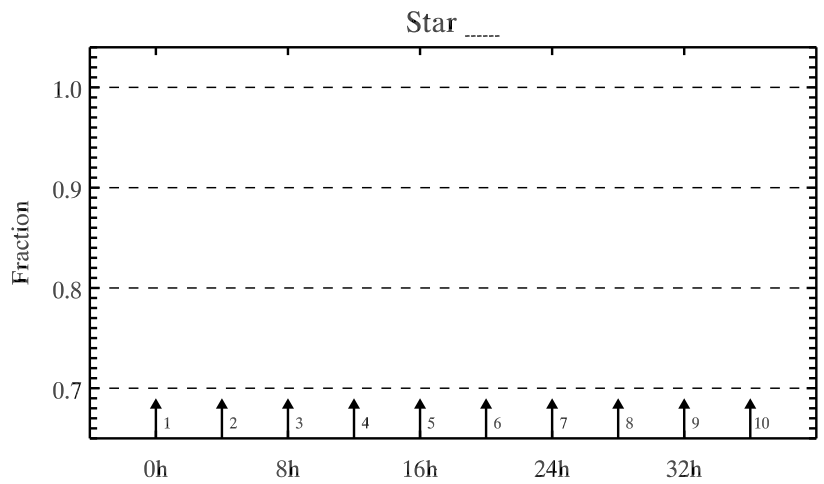
Obs. #	Value	Fraction
Star		1.00
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		



Obs. #	Value	Fraction
Star		1.00
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		



Obs. #	Value	Fraction
Star		1.00
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		



## Discussion Questions:

- 1) Draw the orbit of a planet transiting a star. What orientation of the planet, star, and telescope do you need to produce planetary transits? Do you expect this orientation to be common? Are there some planets that you wouldn't see?
- 2) What can we learn about the physical properties of the planets from transits?
- 3) What is the difference between the planets around Star A and Star C (be as quantitative as possible)?
- 4) The Earth's radius is about 100 times smaller than the sun? How sensitive would our light meter have to be to detect its transit?
- 5) What is the difference between the planets around Star C and Star D?
- 6) What is the deal with B? Why didn't we observe a transit?