

Earth Science:
Astronomy

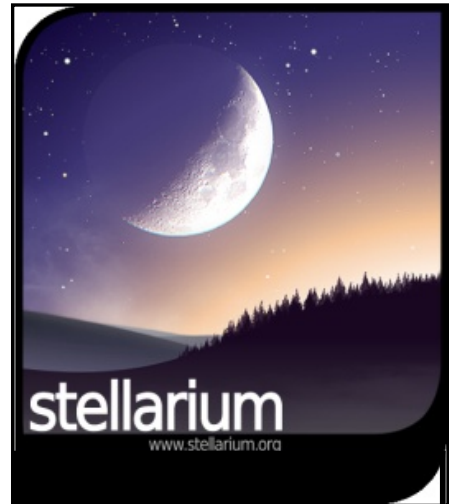
Name: _____
Date: _____
Period: _____

A Guide to Stellarium

INTRODUCTION:

Stellarium is a free open source program that acts as a virtual planetarium. Stellarium is compatible for both Macs and PCs. It shows a realistic sky in 3-D, just like what you could see if you look outside. Stellarium can even customize your locations, what you would like to see in the sky, star folklore, and more!

In this activity, you will become familiar with the application, Stellarium, and see how to use it effectively!



A modified version of Stellarium is also available for free on the iPhone App Store, so you can take the stars with you wherever you go!



Part 1: Logo

Look at the icon for Stellarium pictured above and answer the following questions.



1: Look at the moon inside the icon and draw the phase the moon is in based on what you see.

2: What is that phase called?

3: Now, look at the position of the sun in the sky. Assuming that the sun is rising, is seeing that phase of the moon with the moon low in the sky possible? Explain.

4: Would the position of the moon be possible if the sun were setting? _____

Part 2: Status Bar

As you open Stellarium, you should see a window, which looks similar to the one pictured below in full screen. This is the main screen of Stellarium. The status bar

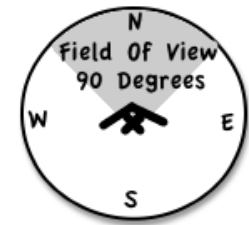


↑ Location ↑ Field of View ↑ Date being viewed
↑ Altitude ↑ frames per second

Using the status bar (above) on the bottom left of the screen, answer the following questions.

As always, don't forget units!

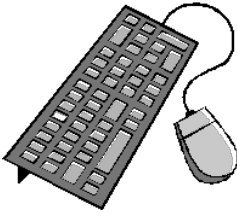
- 5: On what planet are you located? _____
- 6: Where are you observing from? _____
- 7: What is your altitude? _____
- 8: How many degrees are in your FOV? _____
- 9: How many degrees aren't in your FOV? _____
- 10: What time is it in the picture? _____
- 11: What is your FPS? _____



FIELD OF VIEW
DIAGRAM

If point "x" are the observers, and they are all looking north, their field of view is 90 degrees. They cannot see 270 degrees of their surroundings.

BEFORE YOU CONTINUE WITH THIS ACTIVITY, MAKE SURE STELLARIUM IS DOWNLOADED ONTO YOUR COMPUTER



Part 3: Date And Time Keyboard Shortcuts

Every program has keyboard shortcuts. They help make it easier to navigate through the application.

DATE AND TIME	
KEY/S	FUNCTION

-	Subtract 1 Solar Day
7	Set time rate to 0
8	Set time to now
=	Add 1 Solar Day
J	Decrease Time Speed
K	Set Normal Time Rate
L	Increase Time Speed
[Subtract 1 Solar Week
]	Add 1 Solar Week
ALT + -	Subtract 1 Sidereal Day
ALT + =	Add 1 Sidereal Day
ALT + [Subtract 1 Sidereal Week
ALT +]	Add 1 Sidereal Week
CTRL + -	Subtract 1 Solar Hour
CTRL + =	Add 1 Solar Hour
SHIFT + J	Decrease Time Speed Slightly
SHIFT + L	Increase Time Speed Slightly

12: Now press the “L” key on the keyboard 3 times. What happened to the sky in Stellarum?

Now press K to reset the time to normal time speed.

13: What happens when you press “J” 3 times.

14: Is time going forward or back?

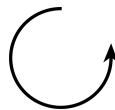
A→What does the motion of stars look like in our northern sky? (Circle or fill in the blank)

In the northern sky, Stars (Revolve, Rotate) **around the** (Moon, Planet, Star), _____.

B→In what direction do these stars rotate when time goes forward?



Clockwise



Counter Clockwise

C→What would change if time was in reverse?

15: What is the difference between a sidereal week and a solar week? (May Require Research)

DISPLAY

KEY/S	FUNCTION	KEY/S	FUNCTION
.	Toggle Equator Line	P	Toggle Planet Labels
CTRL + F	Find Object	Q	Toggle Cardinal Points
A	Toggle Atmosphere	R	Toggle Constellation Art
O	Planet Orbits	S	Toggle Stars
C	Constellation Line	F11	Full-Screen Mode
,	Toggle Ecliptic Line	Z	Toggle Azimuthal Grid
N	Nebulas	CTRL + SHIFT + V	Flip Scene Vertically
F	Toggle Fog	SHIFT + T	Planet Trails
G	Toggle Ground	CTRL + SHIFT + H	Flip scene horizontally
E	Toggle Equatorial Grid	V	Toggle Constellation Labels
B	Constellation Boundaries	;	Toggle Meridian Line

16: What does toggle atmosphere mean? _____

17: Press F5. This brings up the time/date window. Set the date to April 6th, 2012. Then, set the time to 3:20PM. Use the find function to look for the moon. Why can we not see the full moon?

18: How can we modify Stellarium to be able to see the moon?

19: What do the arrow keys do?

WINDOWS: Write in Each Function.

20 F1 _____

21 F2 _____

23 F3 _____

24 F4 _____

25 F5 _____

26 F6 _____

27 F12 _____

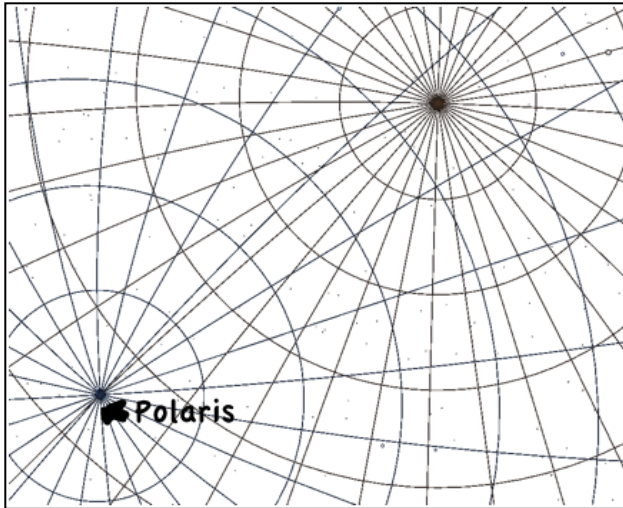
Movement and Selection

KEY/S	FUNCTION
/	Zoom in on selected object
T	Track Object
\	Zoom Out
Space	Center on selected object
CTRL + G	Set home planet to selected
Left Click	Select Object
Right Click	Clear Selection

28: What is the GUI?

29: In the sidebar, what does night mode do to the screen?

30: Why do you think this would be called “night mode”?



MISCELLANEOUS

KEY/S

FUNCTION

CTRL + M	Switch between equatorial and azimuthal mount
CTRL + Q	Quit Stellarium ☹
CTRL + S	Save Screenshot
CTRL + T	Toggle Visibility of GUI
CTRL + R	Reload

31: What object is the center Equatorial Mount?

31: What is a zenith?

32: Which mount is centered on a zenith?

33: What is the difference between the two types of mounts?

34: Label the Equatorial Mount and the azimuthal mount on the image.

35: Now that you are done with this activity, how do you quit Stellarium?
