Galaxy Zoo Homework   Name: _____

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Goals: The goal of this lab is to familiarize you with galaxy structures and train you partici-pate in the "citizen science" galaxy zoo project that inspired and is part of the "Zooniverse."

Step 1: Sign up for Galaxy Zoo
Go to `https://www.zooniverse.org` to register a new account. Write down your login and password so you don't forget them.

Step 2: Find and familiarize yourself with the Galaxy Zoo project.
Click on "Projects," then type "galaxy" into the search box on the right, choose "galaxy zoo."
Click on "Get Started" or "Classify" and read through the tutorial.
Click on the "FIELD GUIDE" tab on the right for examples.

Step 3: On next page – complete before answering the below questions.

Step 4: Answer Questions Using Your Data
Once you have finished filling in the table, fill in the blanks below. For calculating percentages, you use the total number galaxies (excluding stars and artifacts).   #   %

Number & percentage of bulge galaxies (smooth galaxies plus bulge):

Number & percentage of red bulge galaxies:

Number & percentage of disk galaxies:

Number & percentage of red disk galaxies:

Number & percentage of disk galaxies that are face on:

Step 5: Explain whether your data agrees with the following statements. Your an-swers should be in 2-4 complete sentences (write on a separate sheet if you need more room).
A) Disk galaxies contain young stars.

B) Most galaxies are bulge galaxies.

C) Most disk galaxies are seen face on.

Step 3: Classify some Galaxies

Classify 20 galaxies and put the results in the table below.

- In the **Color** column, record the color as <u>R</u> for red or <u>B</u> for blue. Color is sometimes hard to determine; many galaxies appear yellow or orange. Any galaxy without an obvious blue portion is red, and galaxies with an obvious blue portion are blue. Be sure not to use the "inverted" images with a white background.

- In the **Type** column, record an <u>S</u> for smooth, <u>D</u> for features or disk, or <u>A</u> for Star or artifact (this is the first step in the Galaxy Zoo classification). No further data needs to be recorded for Stars & Artifacts.

- For galaxies you record as <u>D</u> (features or disk): In the **Orientation** column record <u>E</u> if it is an edge-on disk, <u>F</u> if it appears to be a face-on disk (such as a spiral), or <u>N</u> if it is not actually a disk (e.g., it is a lumpy blob).

- For all the galaxies where you recorded an <u>N</u> in the **Orientation** column, record in the **Notes** column whether it appears to be a bulge or disk galaxy. For other galaxies, record any notes about them, especially if there is anything odd, like a dust lane.

Number	Color	Type	Orientation	Notes
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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17				
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20				