ASTRO 1020 Lab

L9: Black Holes

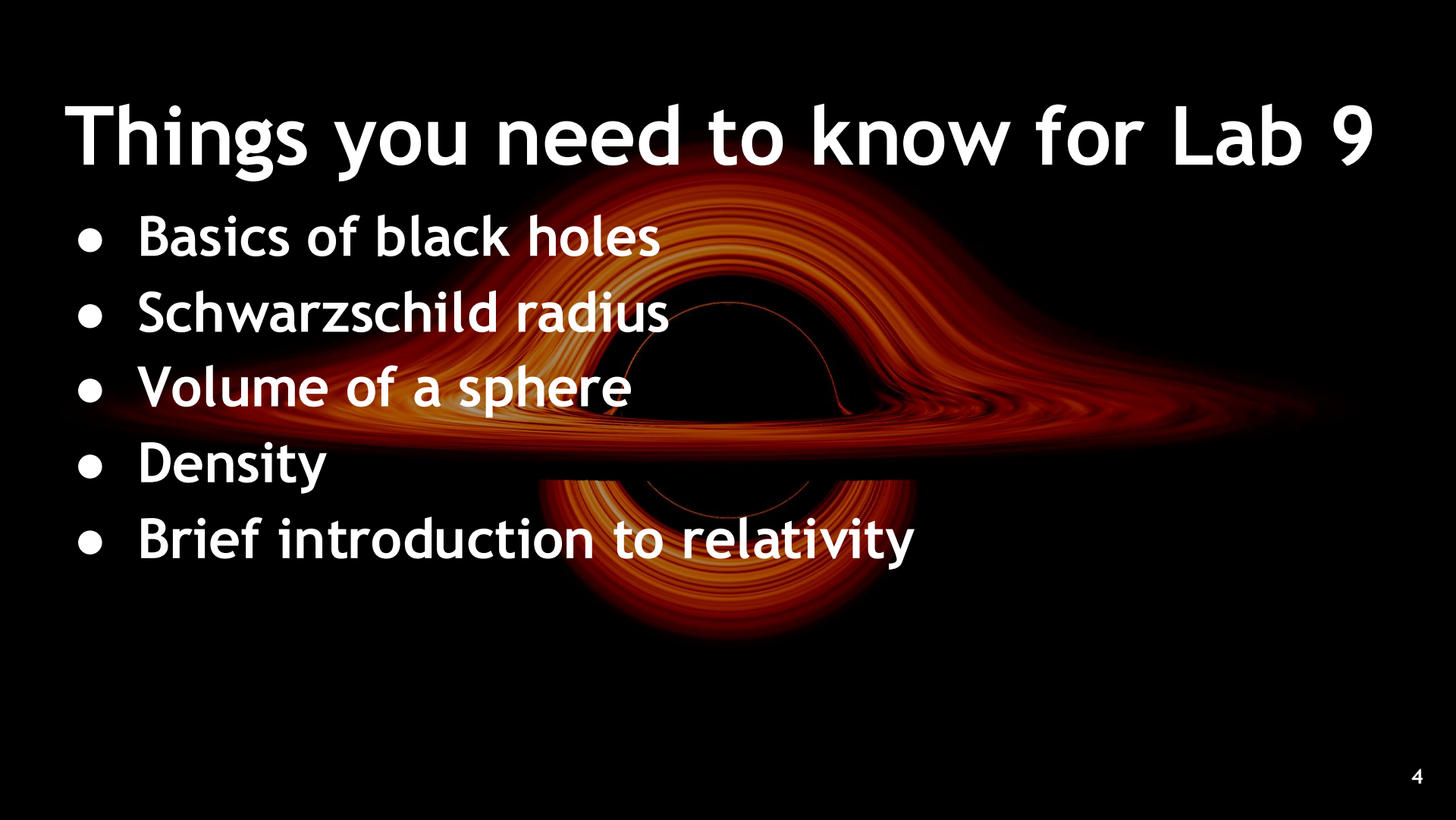
Background Image Credit: NASA SVS

Grading

- All labs are scaled to be graded out of 10 points*

Points per question	Description
1.0	A correct answer with units and work shown. Answers that don't require work will be graded on completion
0.8	A correct answer without units or work shown
0.6	An incorrect answer with units and work shown
0.4	An incorrect answer without units or work shown
0.2	Some work shown without an answer
0.0	Not Attempted

Things you need to know for Lab 9



- Basics of black holes
- Schwarzschild radius
- Volume of a sphere
- Density
- Brief introduction to relativity

Basics of black holes

- Concentrated, hyperdense region of space
- Nothing escapes the event horizon
- *Can be* surrounded by disk
- Result of death of massive star
- Contains a central singularity

Schwarzschild radius

- The radius of the black hole
- Also the size you need to shrink something to make it a black hole

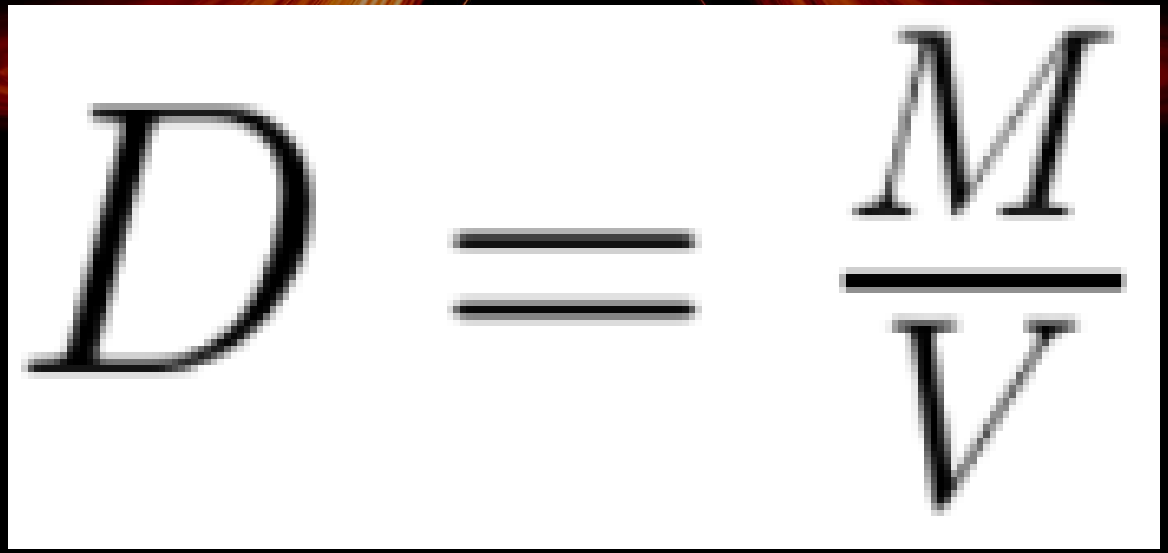
$$R_S = \frac{2GM}{c^2}$$

Volume of a sphere

$$V = \frac{4}{3}\pi R^3$$

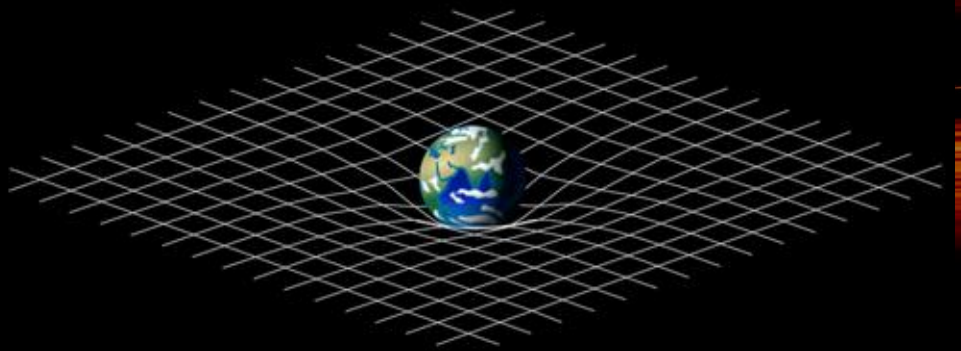
Density

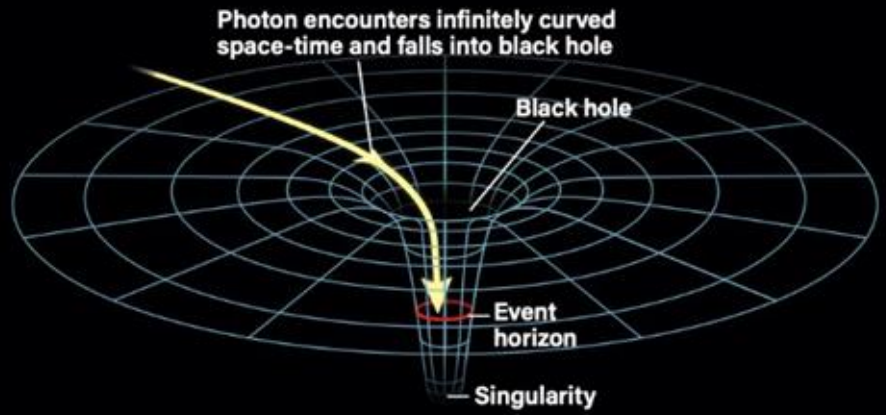
- A measure of how much mass can fit in a given volume



Brief introduction to relativity

- Theory famously developed by Einstein
- Describes gravity as bending the fabric of space-time





Credit: Roen Kelly, after NowScienceNews


Questions?