Asteroid Shapes

1. With your group, come up with a way to measure the roundness of each object. In 2-3 sentences, describe the measurements you are using to determine the asteroid roundness. What roundness would a perfectly circular object have?

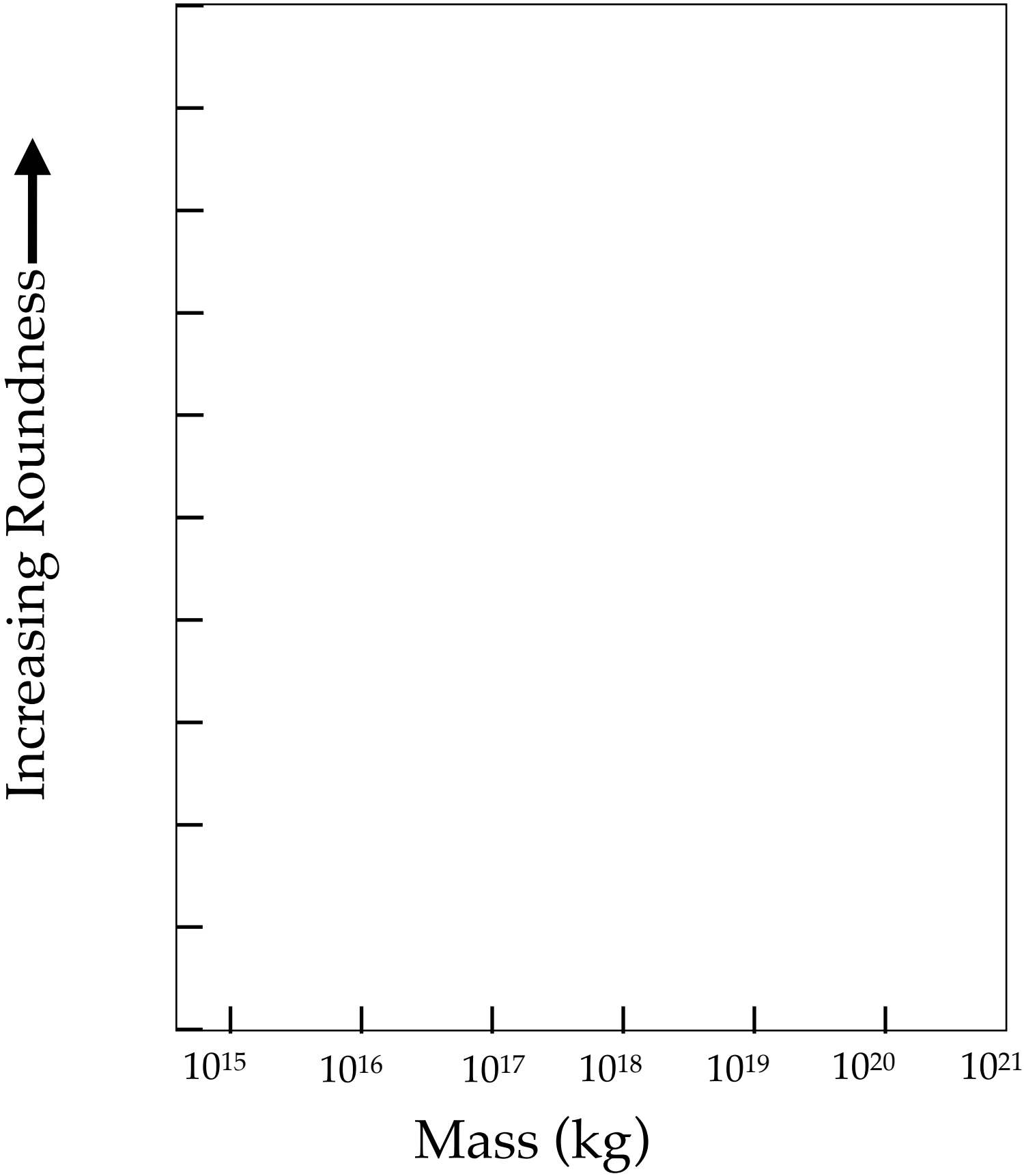
2. In the provided table, collect data on the roundness and mass of each asteroid

3. Plot the mass vs. roundness on the provided graph (Note: the masses are BIG so each tick mark on the x-axis of the graph represents a power of ten!)

4. In 2-3 sentences, describe any trends you see in the plot. What other factors besides mass might influence how round an asteroid is?

Data Table

Name	Mass	Roundness

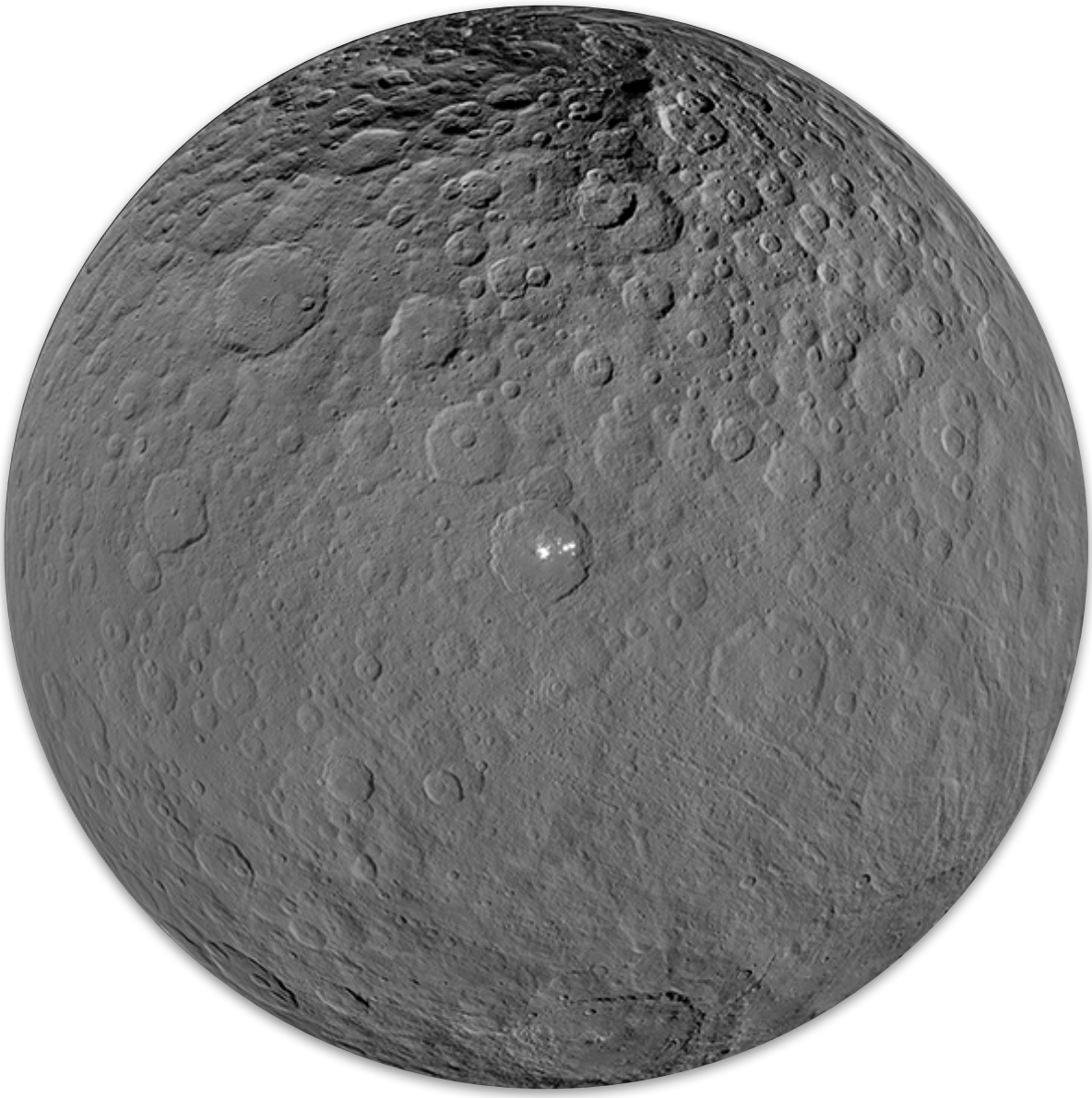

Increasing Roundness
10^{15}
10^{16}
10^{17}
10^{18}
10^{19}
10^{20}
10^{21}
Mass (kg)

Eros

Distance from the sun	1.5 AU
Mass	$7x10^{15}$ kg
Composition	Stony/Silicate (2.7 g/cc)

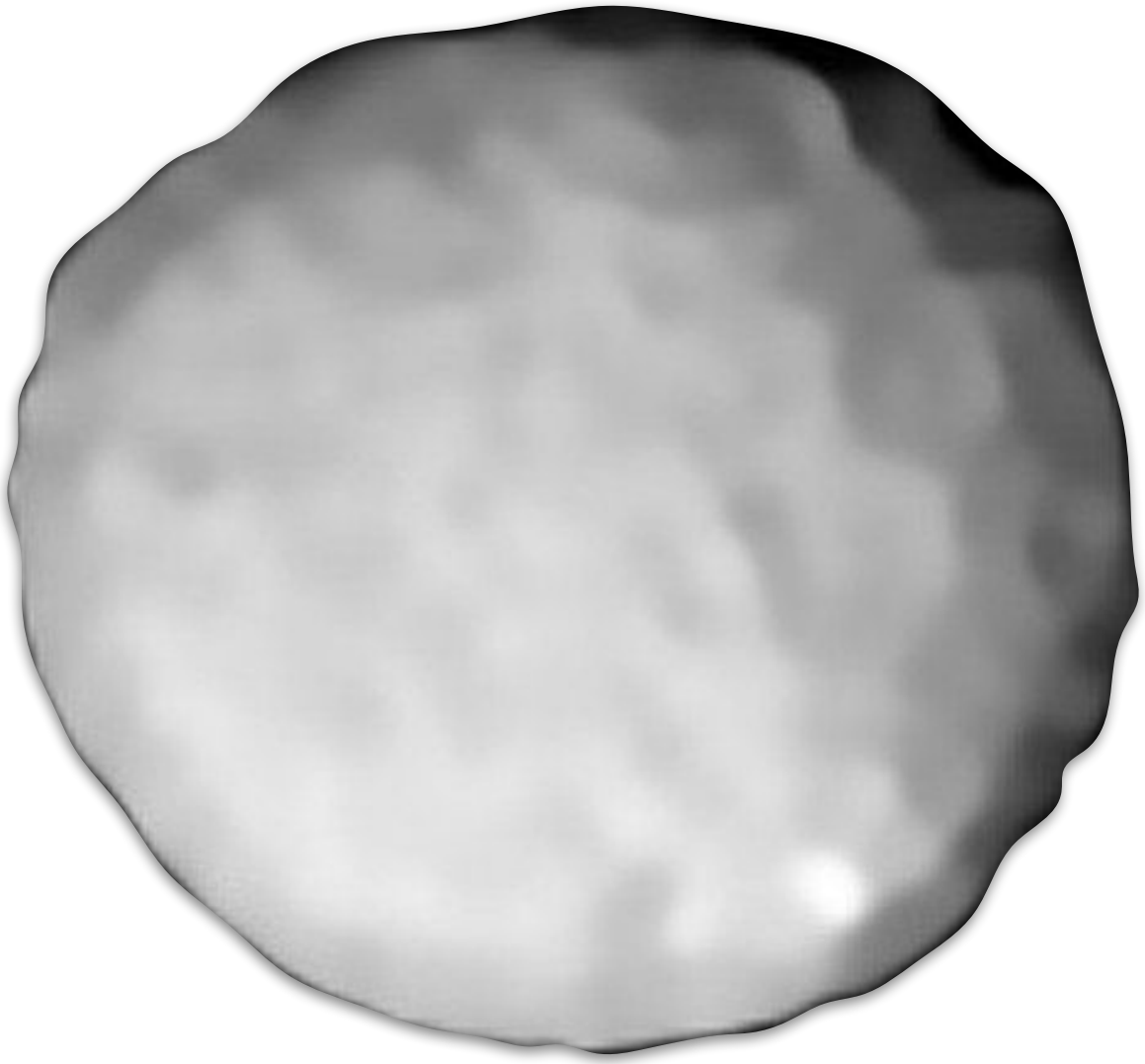
Ceres

Distance from the sun	2.8 AU
Mass	$9x10^{20}$ kg
Composition	Rock/Ice (2.2 g/cc)



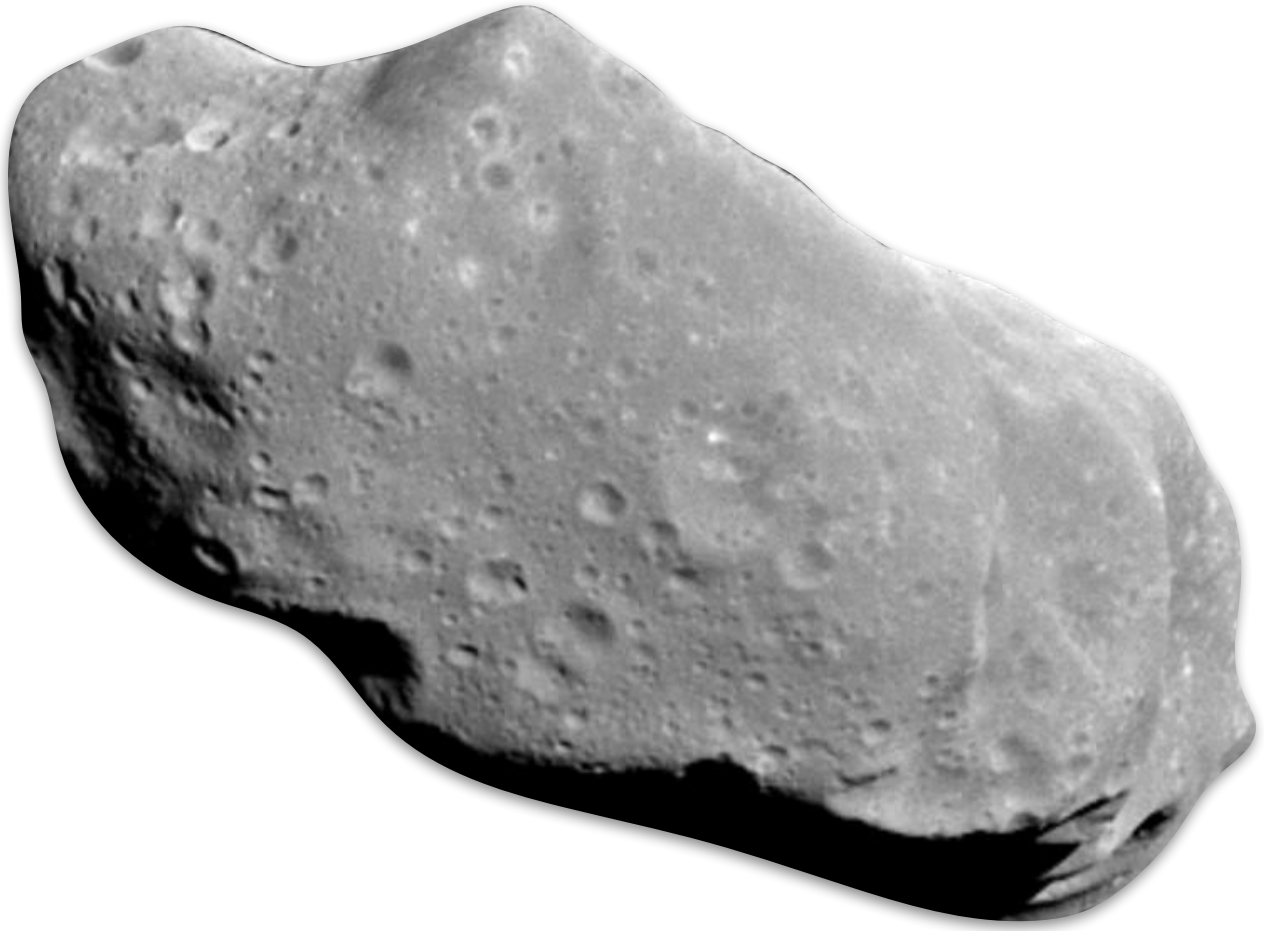
Pallas

Distance from the sun	2.8 AU
Mass	$2x10^{20}$ kg
Composition	Stony/Silicate (2.9 g/cc)



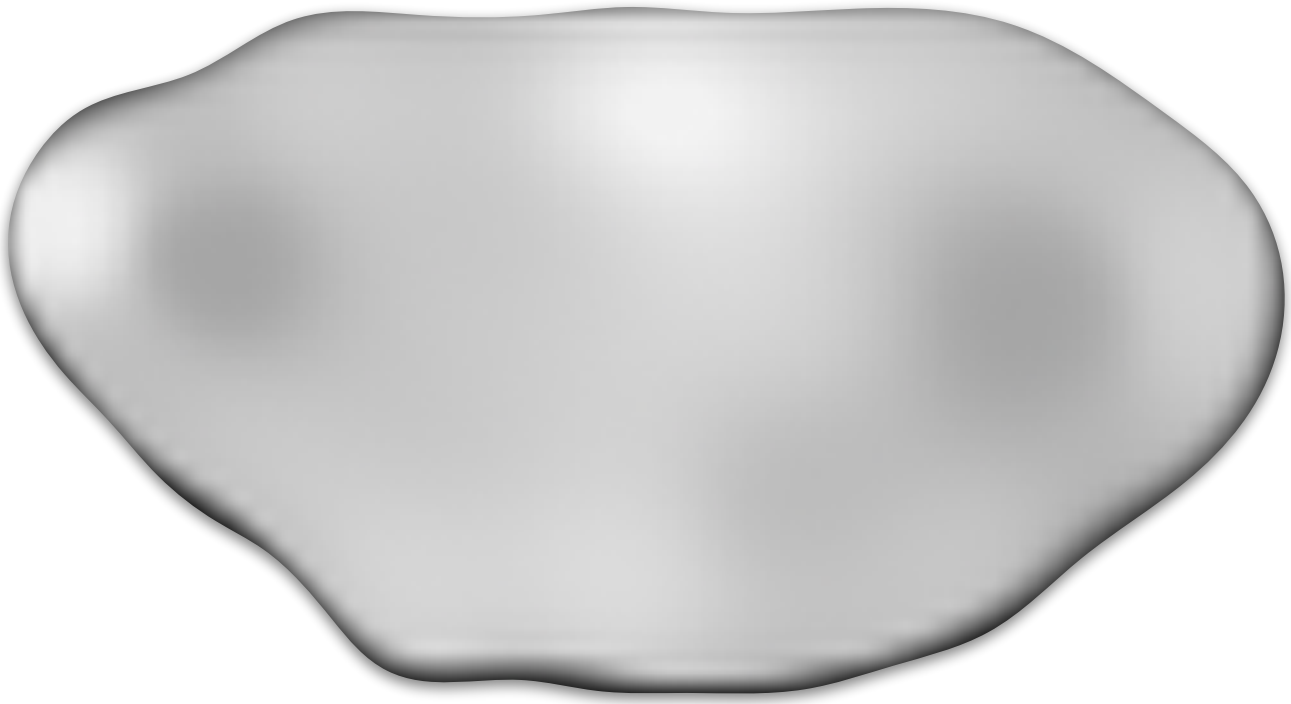
Ida

Distance from the sun	2.9 AU
Mass	$4x10^{16}$ kg
Composition	Stony/Silicate (2.6 g/cc)



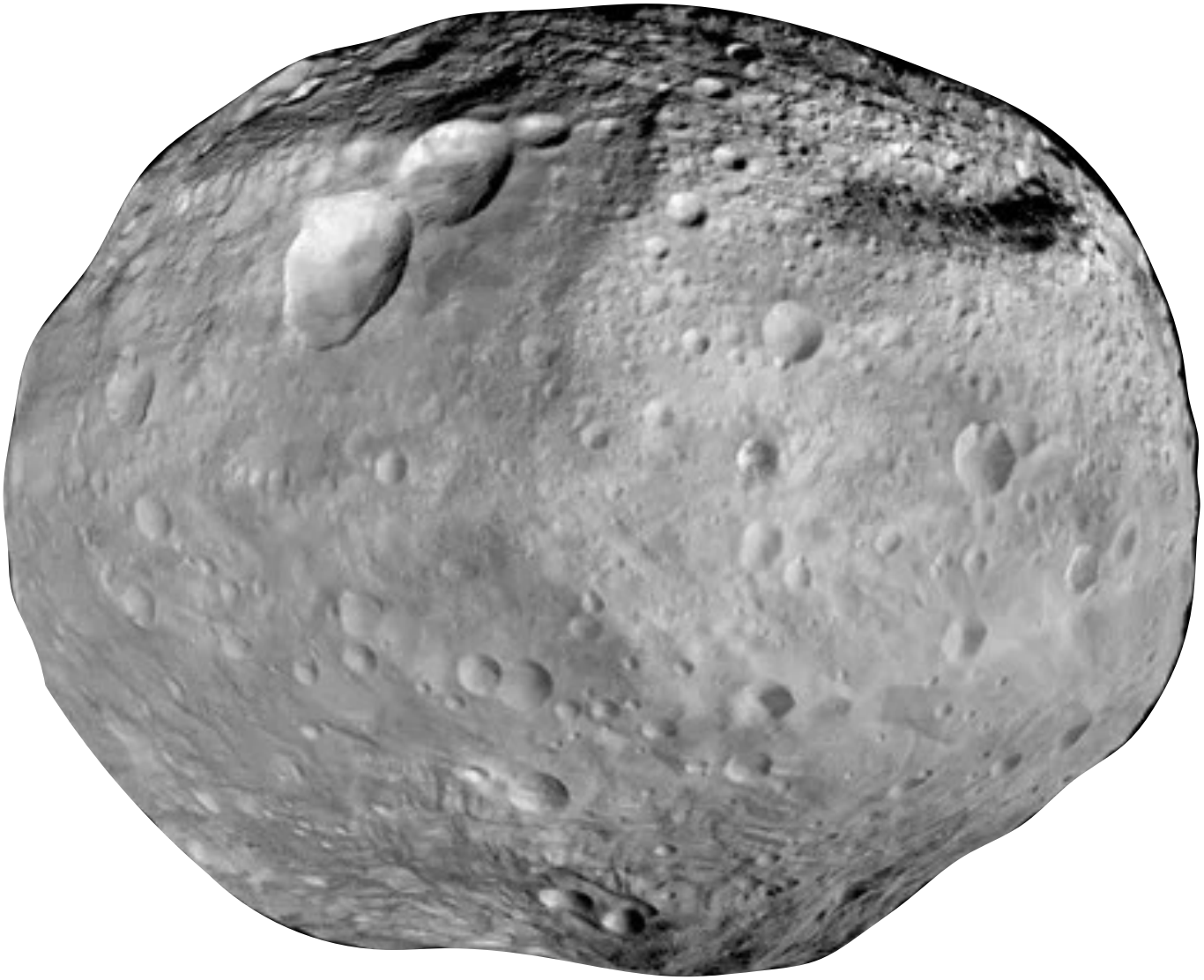
Sylvia

Distance from the sun	3.5 AU
Mass	$1.5x10^{19}$ kg
Composition	Porous Rock/Ice (1.4 g/cc)



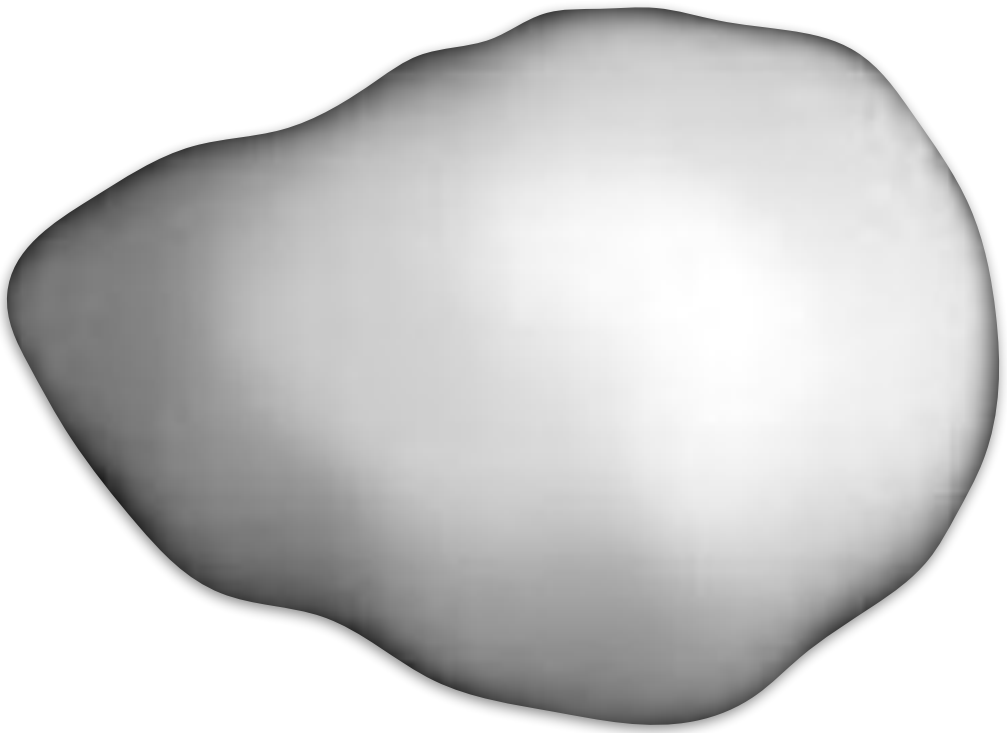
Vesta

Distance from the sun	2.4 AU
Mass	2.6×10^{20} kg
Composition	Igneous Rock (3.4 g/cc)



Daphne

Distance from the sun	2.8 AU
Mass	$7x10^{18}$ kg
Composition	Carbonaceous Rock (1.9 g/cc)

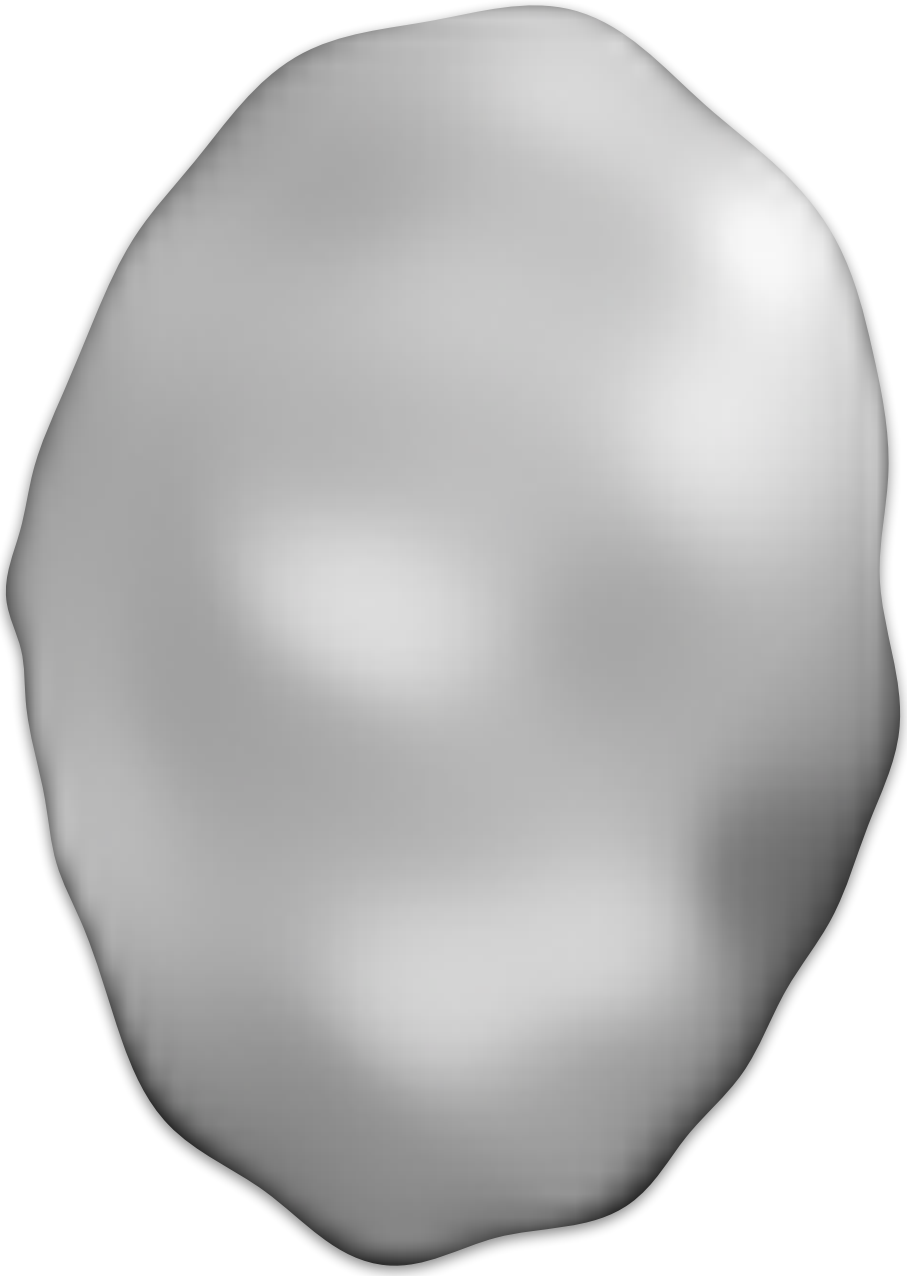


Lutetia

Distance from the sun	2.4 AU
Mass	1.7×10^{18} kg
Composition	Rocky / Metallic? (3.4 g / cc)

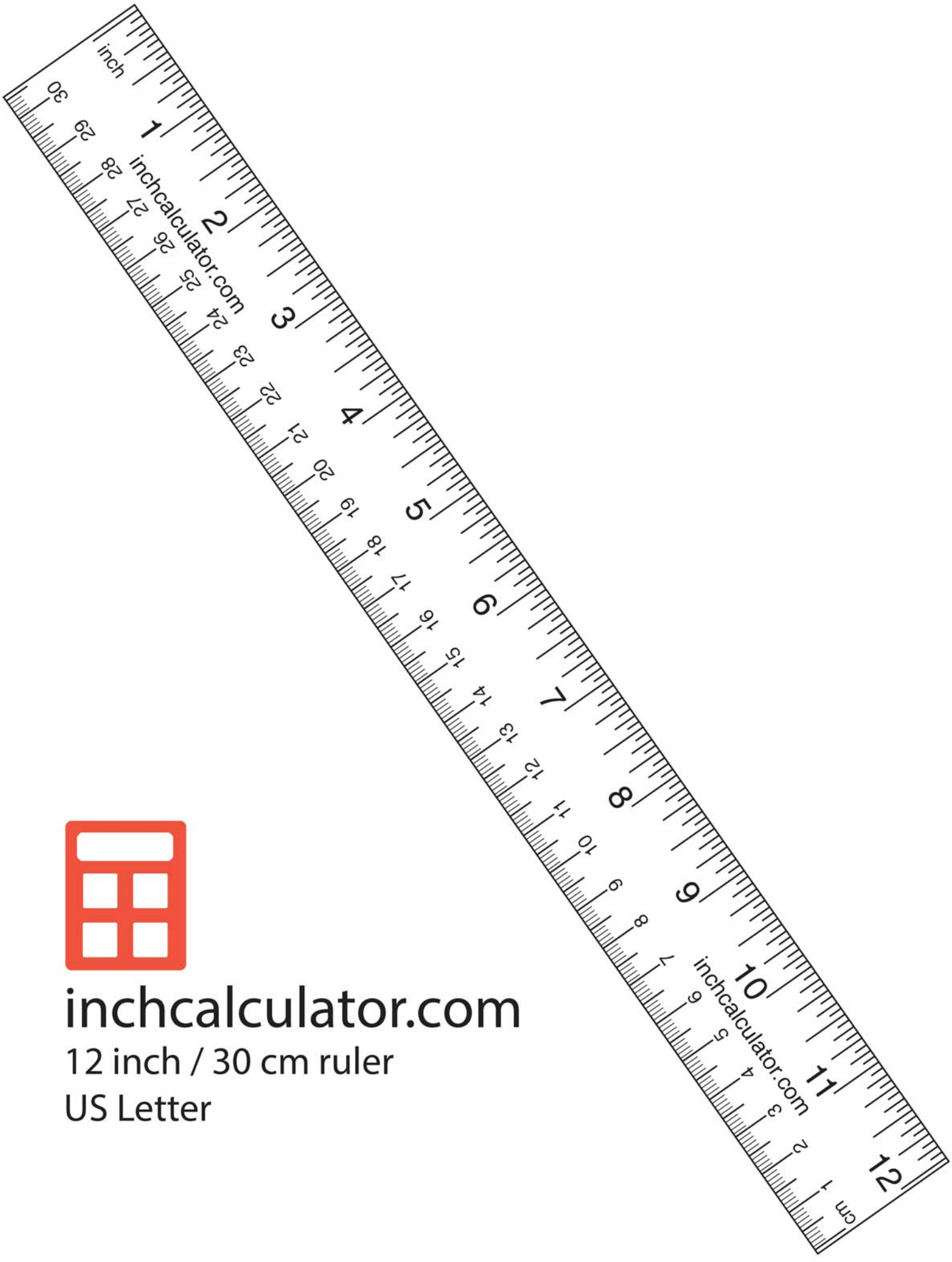
Psyche

Distance from the sun	2.9 AU
Mass	$2x10^{19}$ kg
Composition	Metallic (3.9 g/cc)



Mathilde

Distance from the sun	2.6 AU
Mass	$1x10^{17}$ kg
Composition	Carbonaceous/Porous (1.3 g/cc)



inchcalculator.com

12 inch / 30 cm ruler

US Letter