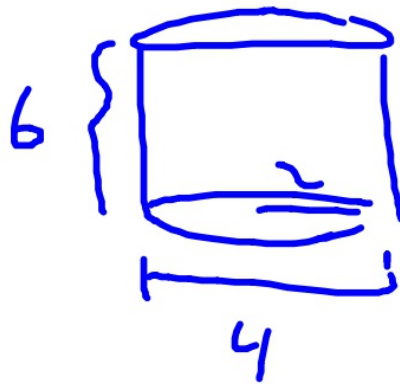


Good afternoon: warm up in notebooks

Find the diameter of a sphere that has the same volume as a cylinder with diameter 4cm and height 6cm.

$$V_s = \frac{4}{3} \pi r^3$$

$$V_{cyl} = \pi r^2 \cdot h$$



$$V = \pi (2)^2 \cdot 6 \approx 75.398$$

$24\pi$

$$\frac{24\pi}{\pi} = \frac{4}{3} \pi r^3$$
$$\frac{3}{4} (24 = \frac{4}{3} r^3) \frac{3}{4}$$

$$\sqrt[3]{18} = \sqrt[3]{r^3}$$

$$\underline{2.62 = r}$$

$$\boxed{D = 5.24 \text{ cm}}$$

$\cdot 2$

Assessments are being passed back

Record grades in your grade sheet

All 4 skills are new, so 4's are 96 in PowerSchool...can upgrade to a 100 with a 4 when they are tested again

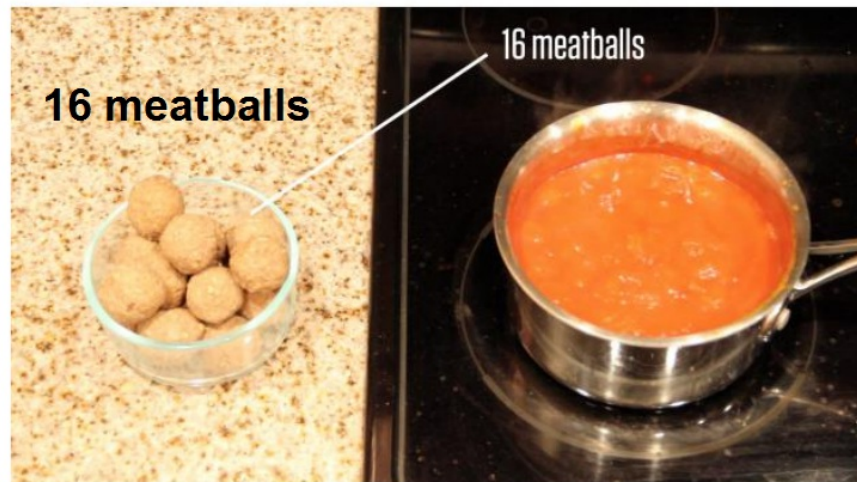
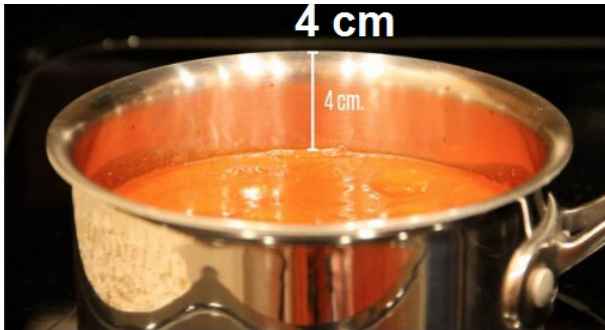
Anything less than a 4 should be retaken! Your responsibility to have HW done and come to DS or tutoring for a retake! Don't wait til the end of the quarter.

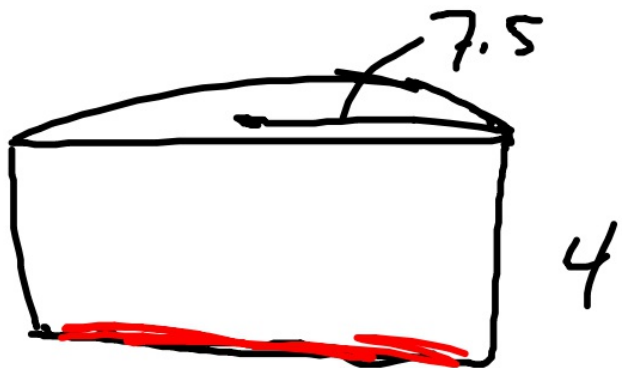
What are the first questions that come to mind?

<http://www.101qs.com/2352-meatballs>

How many meatballs will fit in the pot?







$$V = \pi (7.75)^2 \cdot 4$$
$$\approx 754 \sim$$

$$\underline{\text{Avg. diameter}} = 3.54$$

$$V = \frac{4}{3} \pi (1.77)^3$$
$$\approx 23 \dots$$

$$\frac{754}{23} \approx 32.$$

# Density (Notes)

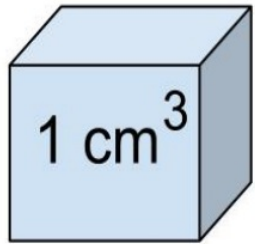
What does this word mean? Think about it and tell your elbow partner.



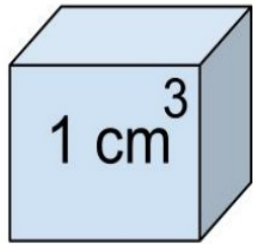
$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

or, amount of stuff in a fixed space

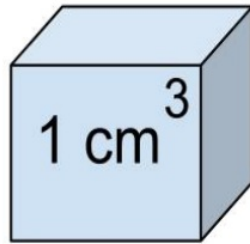




Foam  
0.03g



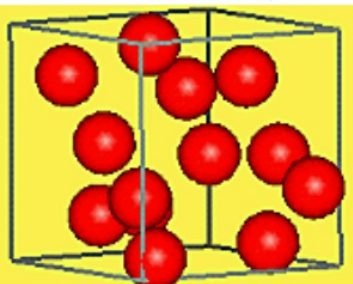
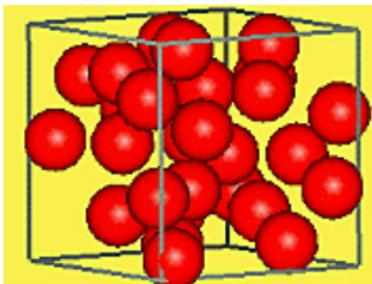
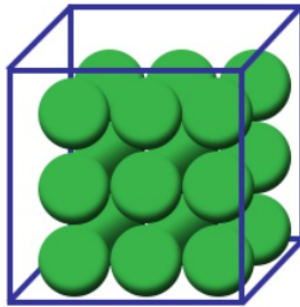
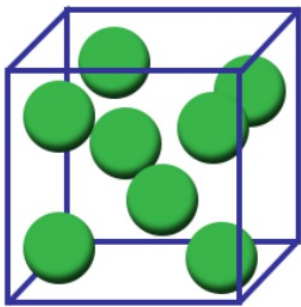
Diamond  
3.5g



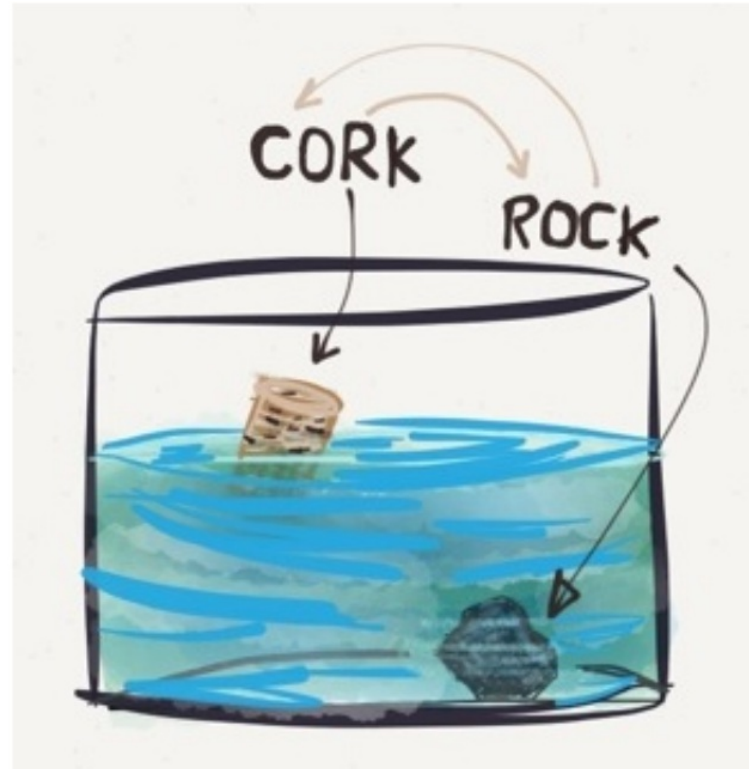
Iron  
7.8g



## Density



dset.com



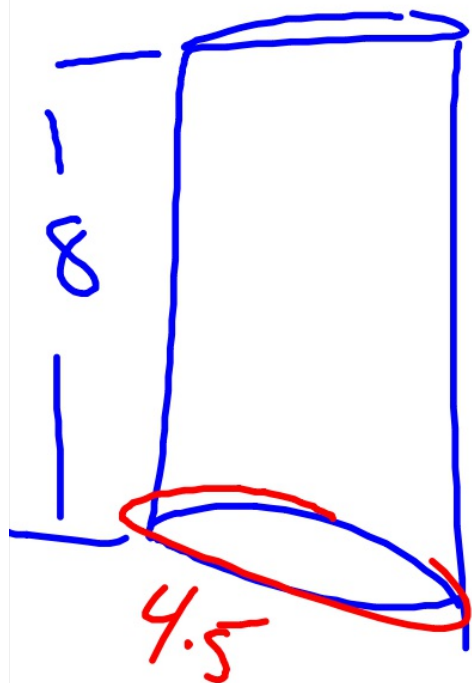
A small bit of a heavy rock has broken off. The piece is in the shape of a cone and measures 3 cm long and is 3 cm wide at its base. Placed on a scale, the mass is determined to be 14.8 grams. What type of rock is it most likely, based on the table below?

<u>Type</u>	<u>Density (g/cm<sup>3</sup>)</u>
Shale	0.5
Granite	3.7
Sandstone	2.1
Diamond	4.8

$$D = \frac{m}{V}$$
$$\frac{14.8}{7.1} \approx 2.1$$

A hemispherical water tank has an inside diameter of 10 feet. If water has a density of 62.4 pounds per cubic foot, what is the weight of the water in a full tank, to the *nearest pound*?

The density of the American white oak tree is 752 kilograms per cubic meter. If the trunk of an American white oak tree has a circumference of 4.5 meters and the height of the trunk is 8 meters, what is the approximate number of kilograms of the trunk?



$$\frac{4.5}{2\pi} = \frac{2\pi r}{2\pi}$$

$$0.72 = r$$

$$V = \pi(0.72)^2 \cdot 8$$

$$V = 13.03 \text{ m}^3$$

$$V \left( \rho = \frac{m}{V} \right)$$
$$\underbrace{d \cdot V}_{\rightarrow} = m$$

$$\rightarrow 752 \cdot 13.03 =$$

$$\underline{9794 \text{ kg}}$$

Mr M's family is from Bangladesh.

Some data about the country:

How many people live in Bangladesh?  
(no cheating!!)

$$2676.8 / \text{sq mi} \times 56977 \text{ sq mi}$$

159, ~  
million



<b>Area</b>	
• Total	147,570 km <sup>2</sup> (92nd) 56,977 sq mi
• Water (%)	6.4
<b>Population</b>	
• 2015 estimate	168,957,745 <sup>[3]</sup> (8th)
• Density	1,033.5/km <sup>2</sup> (12th) 2,676.8/sq mi
<b>GDP (PPP)</b>	2015 estimate
• Total	\$372.448 billion <sup>[3]</sup> (34th)
• Per capita	\$3,581 <sup>[4]</sup> (144th)
<b>GDP (nominal)</b>	2015 estimate
• Total	\$205.327 billion <sup>[5]</sup> (44th)
• Per capita	\$1,314 <sup>[6]</sup> (155th)
<b>Gini (2010)</b>	32.1 <sup>[7]</sup> medium
<b>HDI (2014)</b>	▲ 0.570 <sup>[8]</sup> medium · 142nd
<b>Currency</b>	Taka (b) (BDT)
<b>Time zone</b>	BST (UTC+6)



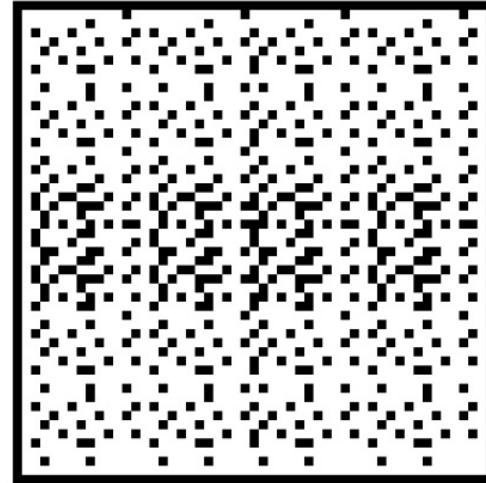
How densely populated is 2676.8 people/square mile?



1 Mile

1 Mile

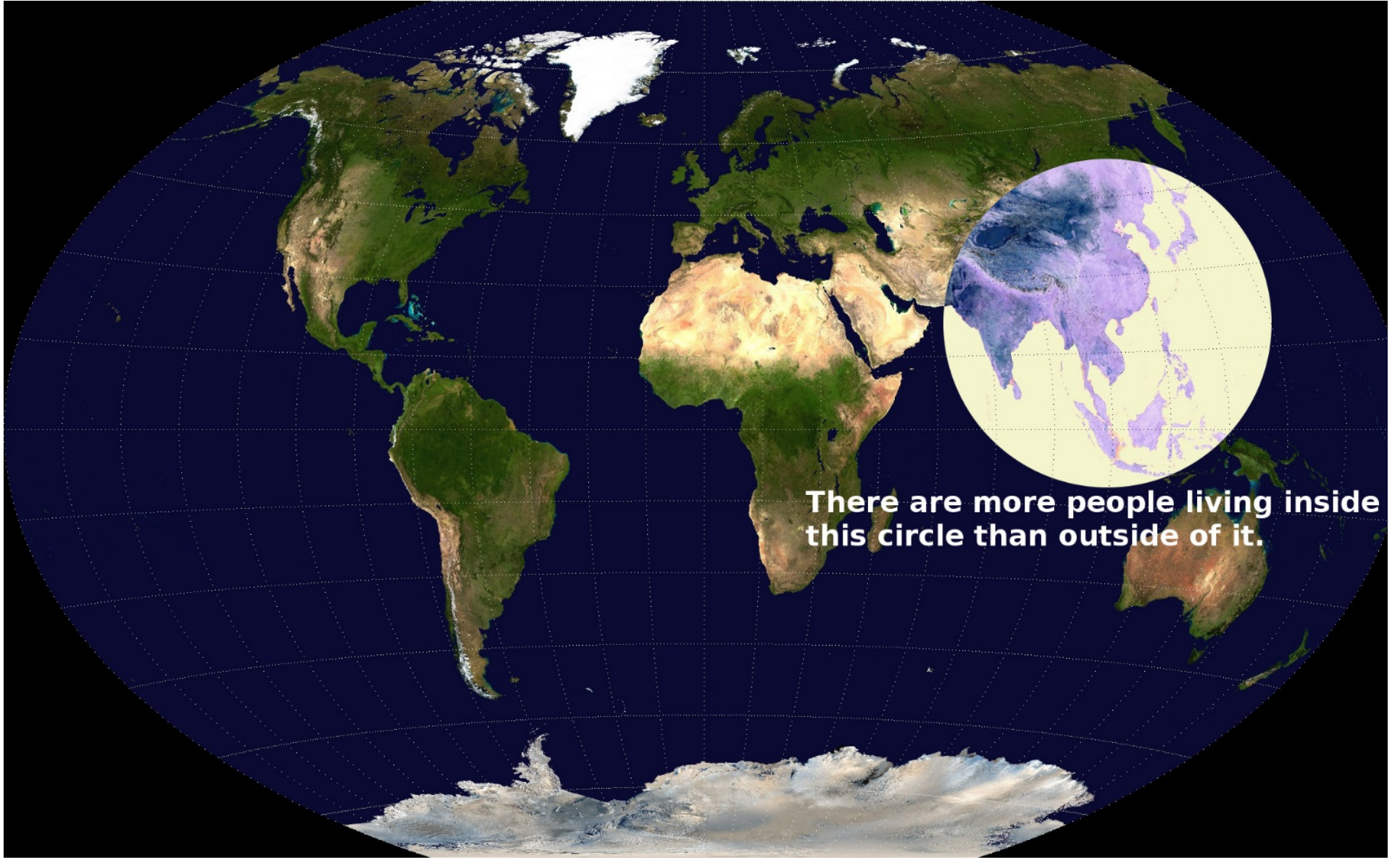
there are 2600 dots in this box



1 Mile

1 Mile

there are 620 here  
(approx. density of Hamilton Co)



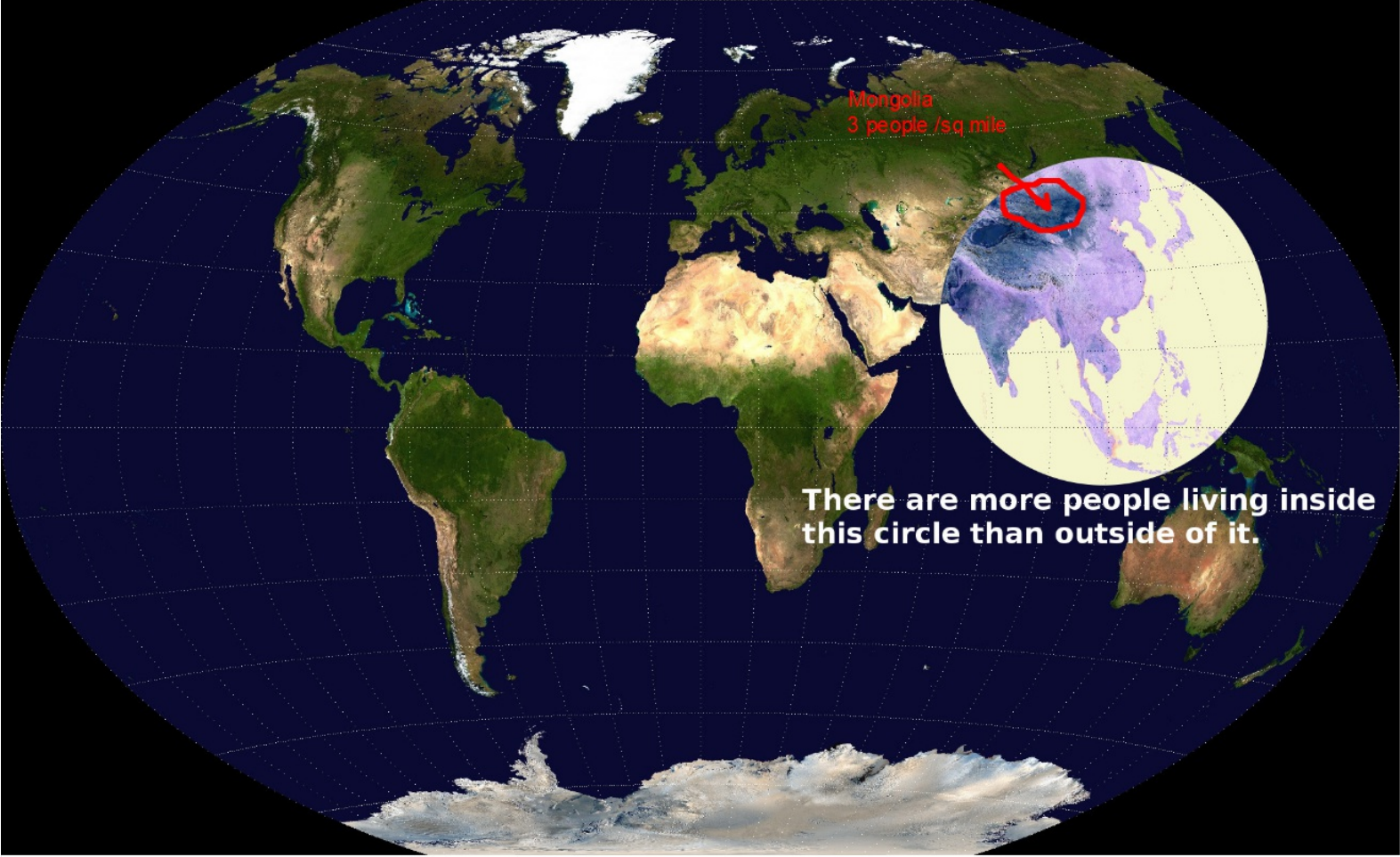
**There are more people living inside  
this circle than outside of it.**

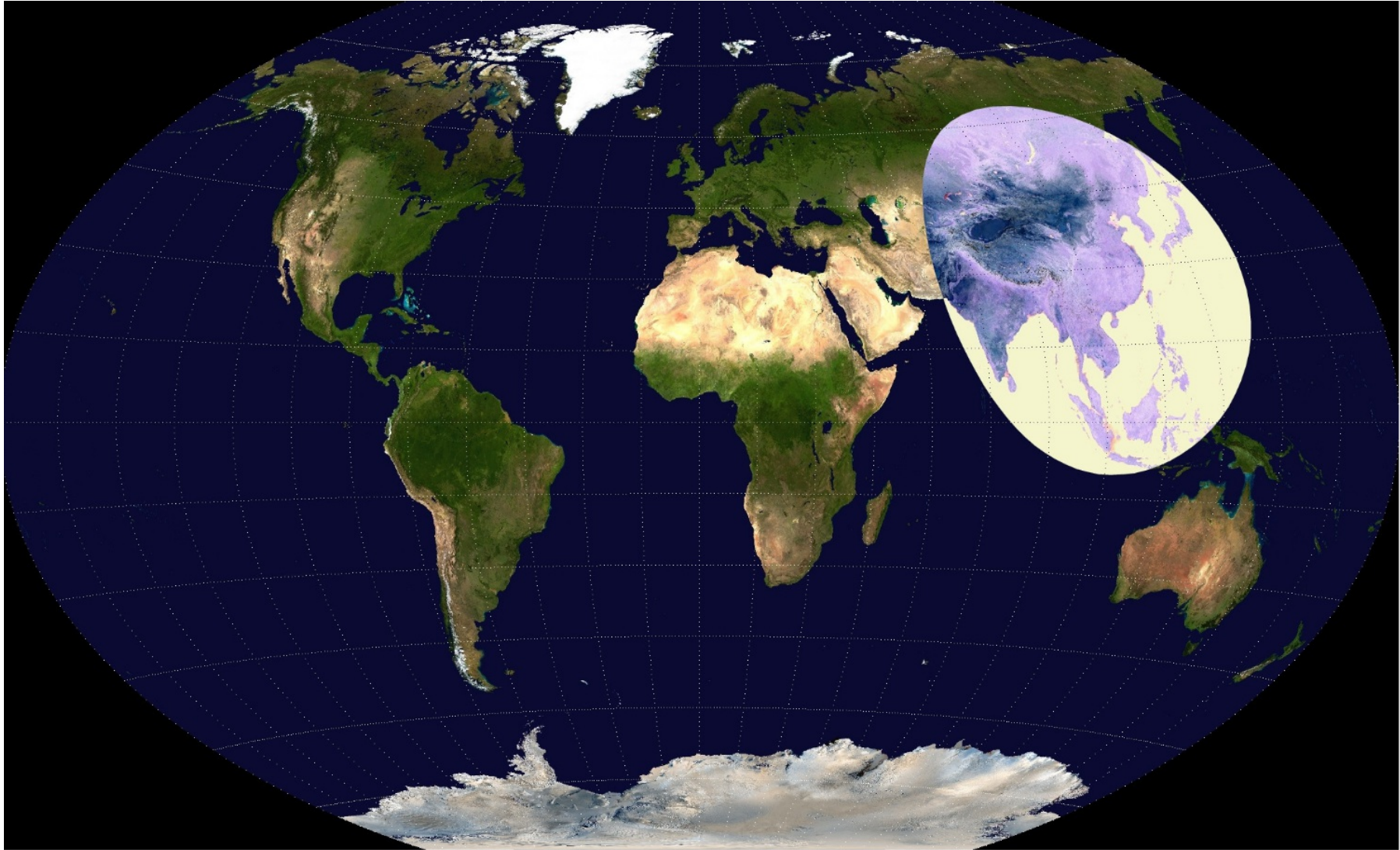


Mongolia  
3 people /sq mile

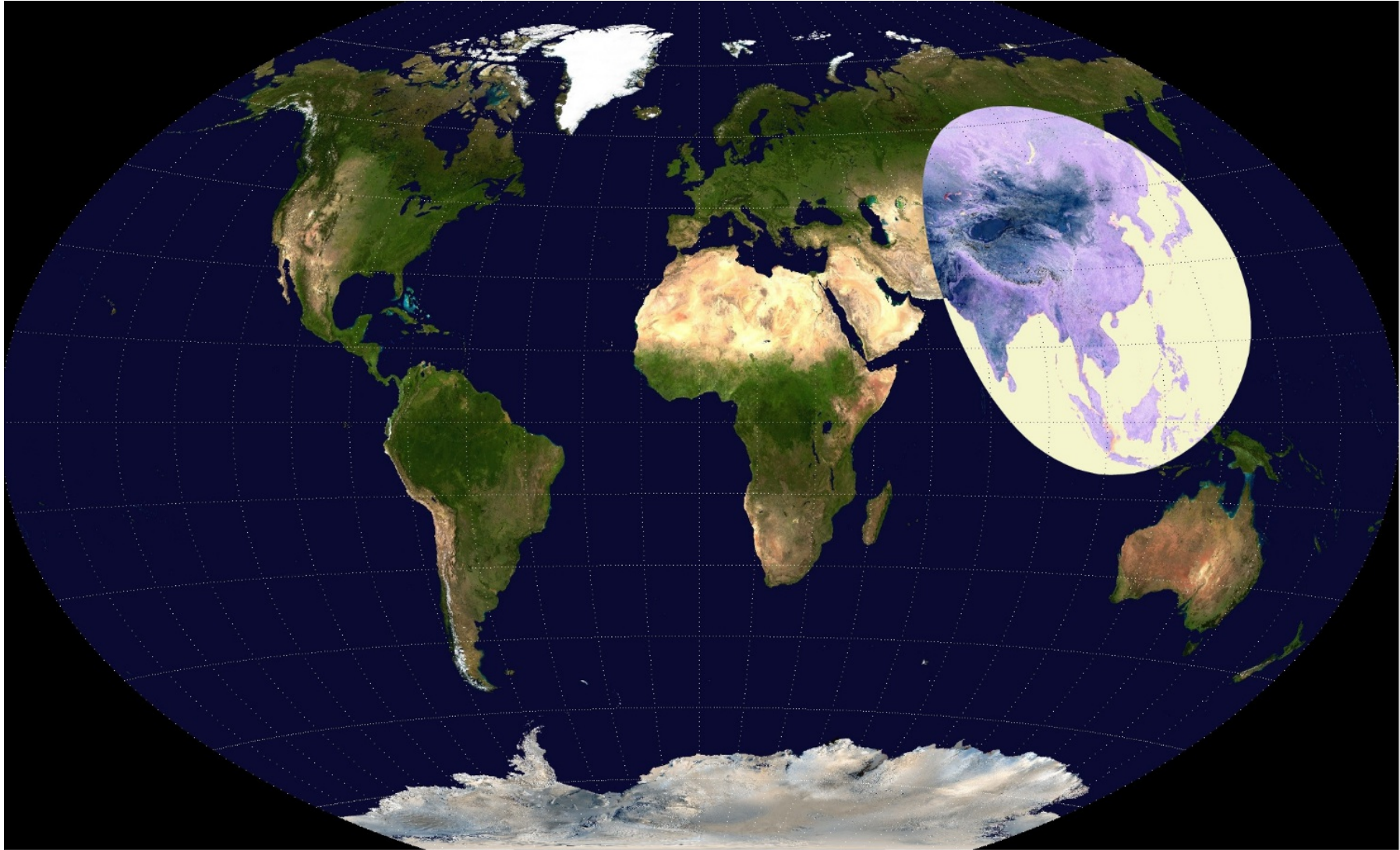


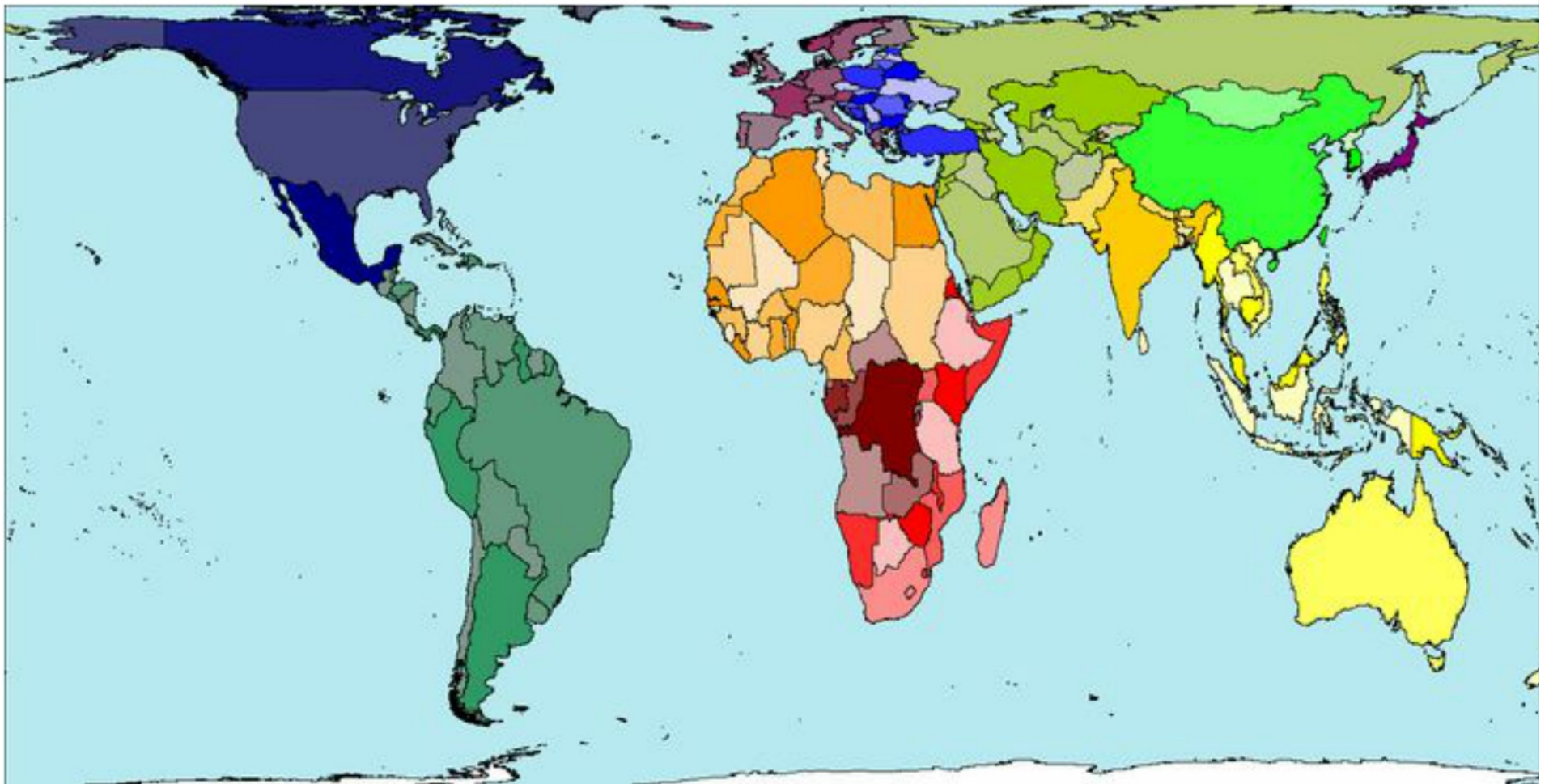
**There are more people living inside  
this circle than outside of it.**







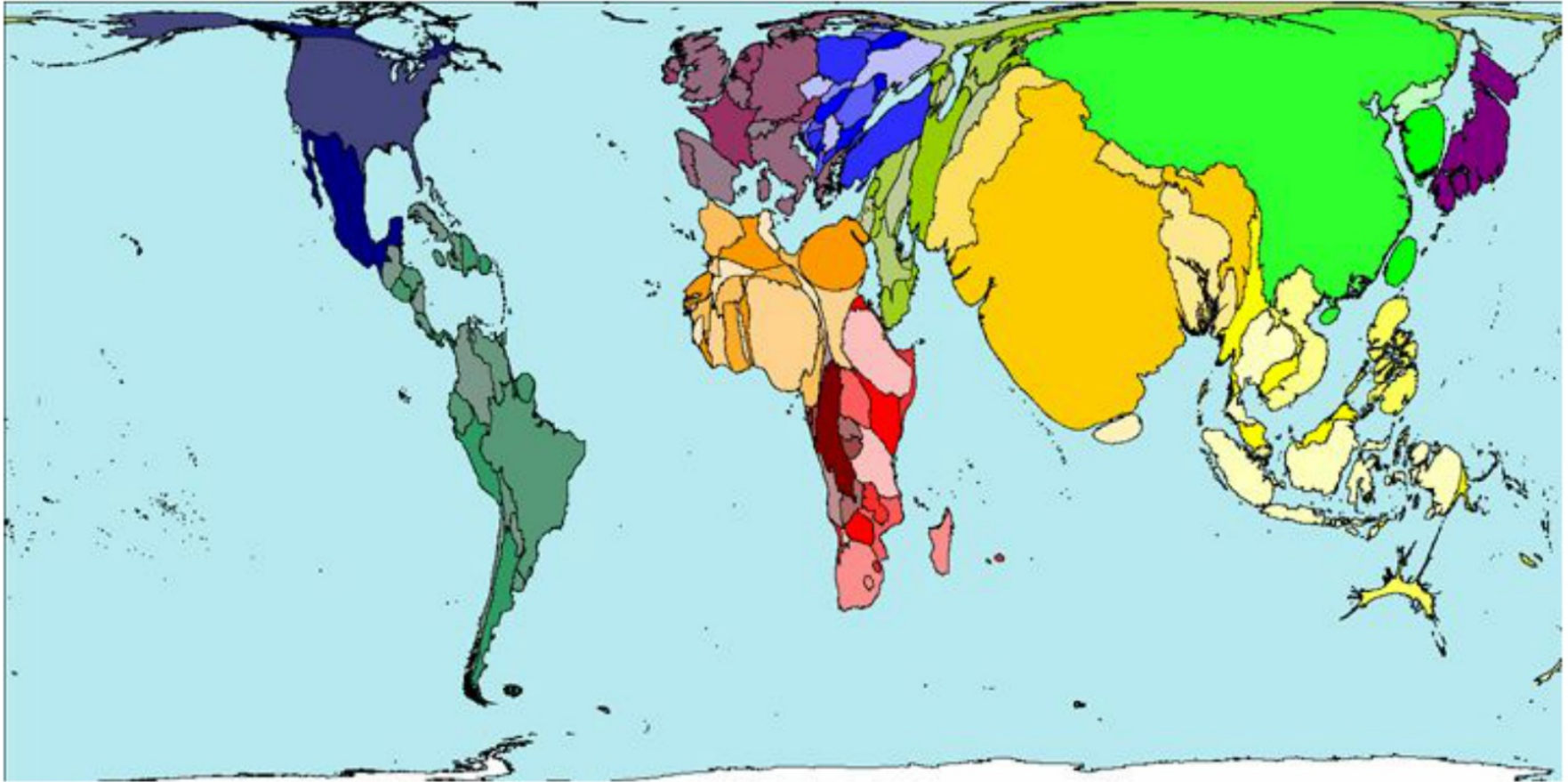




Land Area







Population



HW: p 522 #9, 11, 14