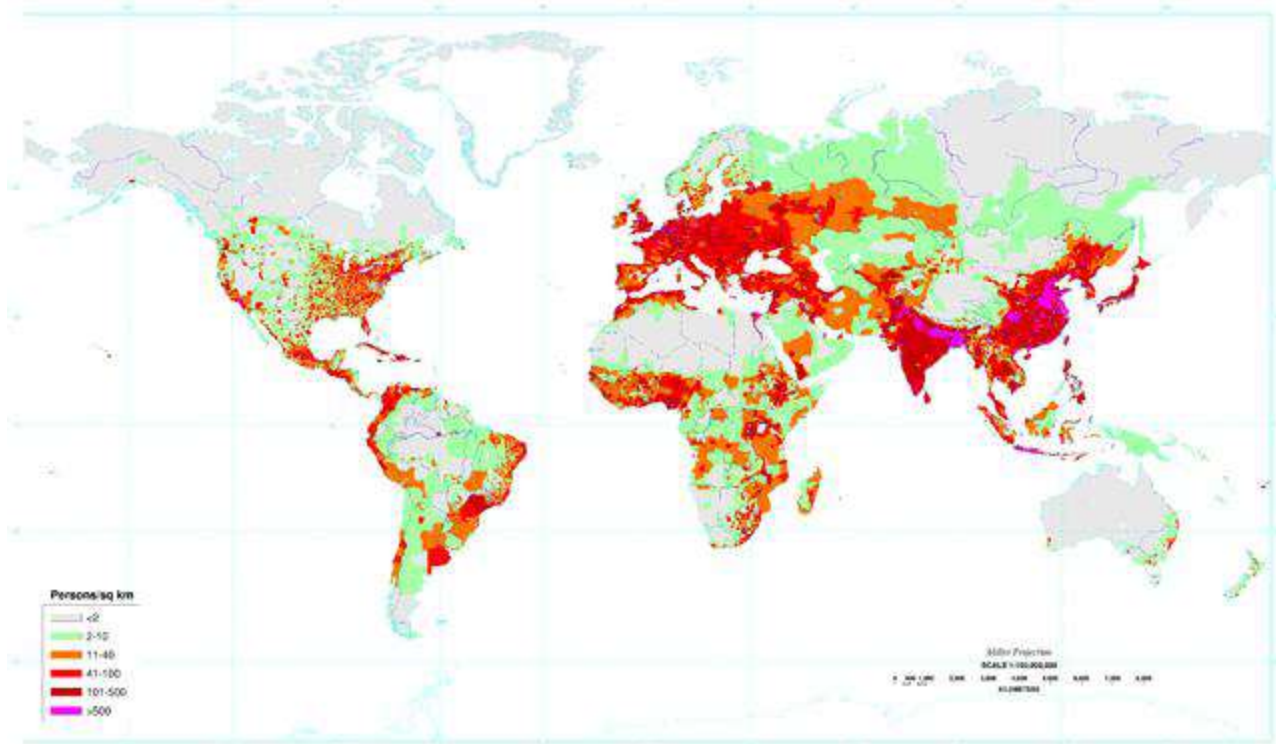




CRASH COURSE REVIEW – POPULATION DENSITY

We look at population through double lenses of space and place. Human populations have moved and settled in a variety of locations over a long period of time. That movement or migration raises several questions. What makes up a population? What makes it grow or decline? Why do populations move to a new location? In this AP Human Geography study guide, we will explore the concept of **population density** as a sub-set of demography, which is the study of the characteristics of a human population.

Population is an important topic in AP Human Geography and is heavily tested on the exam. It is important to know and be able to apply the concepts of population density, at every scale from local to global. We will discuss population density as a way to explain the relationship between people and their environment. For the AP Human Geography Exam, it is also important to know how to calculate population density and the implications it has on society and the environment.

What is Population Density?

When we talk about population and its characteristics, it is easy to take an overly simplistic view. You can fall into that trap when you look at population density. You may also confuse **population distribution** (the pattern in which people live) with its density. The simple definition of population density is the number of persons per unit of land area. On any map showing population density, you can clearly see which regions have many people per unit of land area, and which regions have very few, if any, inhabitants.

The largest cluster of people on Earth live in East Asia, with about 20 percent of the world's population residing in that region. Following close behind, the next most densely-populated areas are in South Asia, Southeast Asia, and Europe. The rest of the world's population is unevenly dispersed over the remainder

of the planet. The largest concentration of people in the Western Hemisphere live on the northeast coast of the United States and upward along the southeastern coastline of Canada.

To understand why people live in the concentrations they do, you need to understand that only part of our planet is fit for human habitation. This is called the **ecumene**. Ecumene comes from an ancient Greek term for the inhabited world. It refers to the part of the world that people have set up permanent residence in and use for agricultural and economic purposes.

The ecumene is relatively small. In fact, about 75 percent of the population of the world live on 5 percent of the Earth's surface. Did you also know that 50 percent of the world's population now live in urban centers? That population density can cause problems both with quality of life for the inhabitants and with the surrounding environment. We are now going to explore how population density is expressed in the study of AP Human Geography.

Three Methods of Calculating Population Density

There are three different ways of expressing the population density of our planet. These different methods are used to explain the relationship between people and the environment, so that geographers can understand the impact that population has on their quality of life, the services that governments can provide them, and the impact that humans have on our planet's resources.

Physiological Density

This may be the most helpful way of expressing population density. Physiological density is the number of persons per unit of agricultural land. This measure of density is useful, because it can give us a rough estimate of how many people an area of farmland can reasonably support.

Physiological density is also helpful when studying population pressure and overcrowding. Population pressure is the total of all the factors, like an increase in population, which reduces the ability of a geographic area to support the inhabitants. The productivity of the land is also a factor in studying the physiological density of an area. Is the soil very fertile and arable or is it overworked and poor? Since there are other factors that you must consider, physiological density is not a foolproof statistic.

What can we deduce from looking at a country's physiological density? We know that the higher the physiological density is, the more pressure people put on the land to produce enough food to survive. It also suggests that the available agricultural land is being used by more people, and it may reach its output limit sooner than a country that has a lower physiological density.

To put this concept into numbers, the United States has a physiological density of 179, whereas Djibouti, in the Middle East, comes in at 131,101. That means the government of Djibouti must rely on external sources of food to support their population because they do not have enough arable land to support their citizens.

Agricultural Density

The measure of population density refers to the number of people living in rural areas per unit of agricultural land. You do not count people who live in cities when calculating the agricultural density, only the estimated number of people actually living off the farmland. To find the agricultural density,

divide the area of farmland by the population of farmers in that area, giving you an average of land worked by each farmer.

You will find a lower level of agricultural density in more developed countries, because they have access to better technology and money, which allows an individual to work more farmland. The condition of the soil can also affect agricultural density since some countries have much more fertile land than others. The bottom line is that a higher level of agricultural density may mean that that available arable may reach the end of its production potential sooner than an area of a lower level of agricultural density.

Arithmetic (crude) Density

This measure of population density is also called crude density. This statistic is probably the most general and least useful of the three measures of population density. To get crude density, divide the total land area by the total population. You can see that when you measure a large area of land, the arithmetic density becomes meaningless because it “blends in” the urban population and masks the sparsely-inhabited areas with an average. Arithmetic density is more useful when you study homogeneous areas, like single cities or towns, where populations are fairly evenly-distributed.

How does Population Density Influence Political, Economic, and Social Processes?

In general, increases in population density equate to problems for a country. Urban areas with a high arithmetic density have an increased need for food, infrastructure, and health/human services. These programs are extremely costly, and the economy of many high-growth countries can’t adequately provide basic services for their citizens.

There are positive and negative influences of population density on political, economic and social processes. Here is a way to clearly see the influence of population density on these processes.

Political	Economic	Social
More laws are needed	More jobs are needed	More crime is a result
Large cities hold the power	Poverty increases	More health/human services are needed
Redistricting required	There is a higher tax base	There is greater diversity of language & culture

It is key to understand that population density also affects the need for infrastructure and urban services. The more people that move into a town or city, the greater the need for the inhabitant have access to an adequate place to stay and robust urban services, like sanitation, to prevent disease or infestation.

How does Population Density Impact the Environment and Natural Resources?

As the world population grows, greater pressure is being placed on arable land, water, energy, and natural resources to provide a satisfactory supply of food while maintaining balance in our ecosystem. Population density can have a negative impact on our environment and natural resources. These pressures can lead to deforestation, result in overcrowding, and could lead to the destruction of our planet’s delicate ecosystem. Growing populations use large amounts of nonrenewable resources like timber, coal, and oil. Once these natural resources are gone, they are gone forever.

Population density impacts the **carrying capacity** of an area. The carrying capacity is defined as how many people an area can support on a sustained basis. Together with density, carrying capacity can define whether an area is overcrowded. You can have an area of high population density but is not considered overcrowded if the area has a high carrying capacity. The area may have very rich soil and modern farming methods. A country such as Greenland has a very low carrying capacity. This could make the country overpopulated at a density that would make other places underpopulated.

Population Density and the AP Human Geography Exam

We know that AP Human Geography concepts like population may be hard to study for. But that's why we've created this AP Human Geography crash course on population density, to bring those concepts into focus. The AP Human Geography exam will test your knowledge of human population characteristics and the how population density is used to explain the relationship between people and the environment. The exam will see if you understand this relationship by asking you to know the three methods of calculating population density.

You can expect multiple-choice questions on the how population density influences political, economic, and social processes. You should be able to express the influence that population density has on the environment and natural resources and the need for additional infrastructure and urban services.

Conclusion

The study of population is important to anyone who is going to take the AP Human Geography Exam. This AP Human Geography crash course is here to help you make sense of the way that population density is calculated. You have learned how it impacts the political, economic and social processes of a country. We also outlined how population density can affect the environment, and discussed the future of areas that may be in decline because of overpopulation. But remember that population density is only one part of the study of geographic patterns and characteristics of human population. Make sure to check out our guides on other aspects, too.