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National Council for  
Geographic Education

# Three for Three

**Week 3 , Unit 2 Population & Migration Patterns & Processes**  
**August 31, 2020**

**A SUPPLEMENT TO THE WEEKLY APHG BELL RINGERS SERIES**  
**Prepared by Laura Kmetz | [laura.kmetz@gmail.com](mailto:laura.kmetz@gmail.com)**

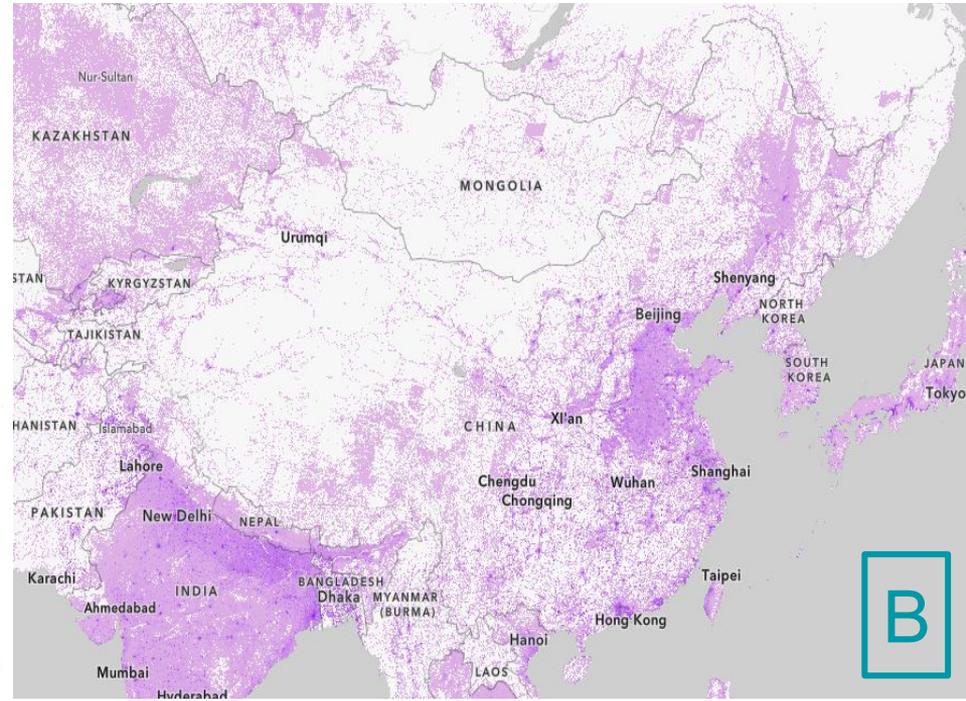
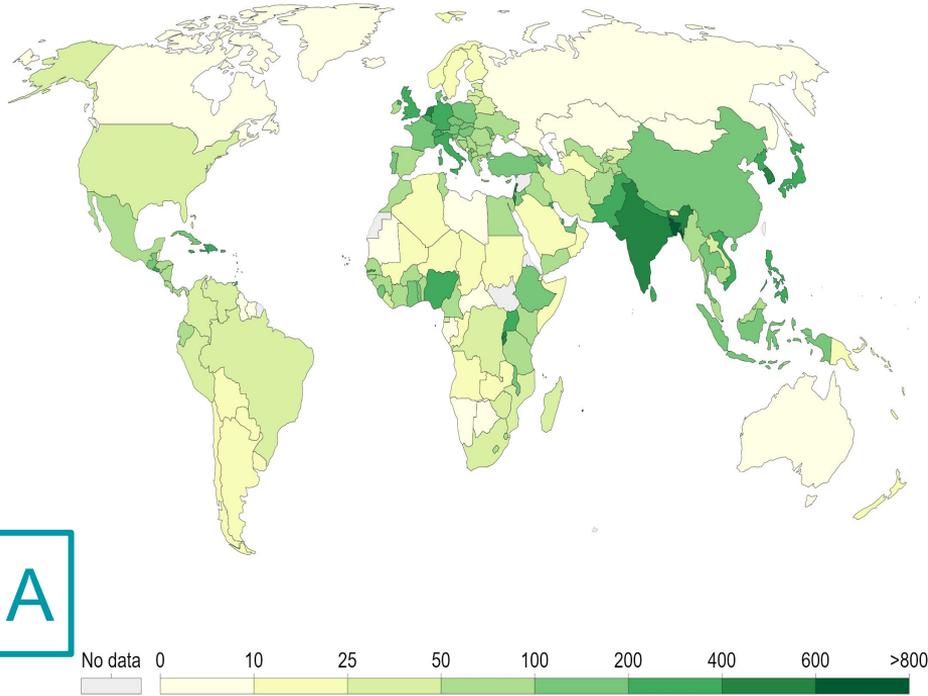
We'll be spending five weeks on unit 2. I'll provide you with at least one stimuli/activity for each topic in the CED.

If you want to post the pdf in your LMS without the "ideas for slides" pages, you can use something like the Chrome extension *Smallpdf* to remove the pages you don't want to post.

If you have any suggestions as to how I can make the Three for Threes more useful for you and your students, or if you have any questions, please feel free to email me at [laura.kmetz@gmail.com](mailto:laura.kmetz@gmail.com).



# 2.1 Population Distribution



1. Explain which map displays population distribution and which displays population density.
2. Describe the population distribution of China.
3. Compare the usefulness of knowing arithmetic population density to that of knowing population distribution in a country such as China that is large in size and population.

# 2.1 Population Distribution



COUNTRY	AREA (SQ. KM.)	POPULATION (in millions)	ARABLE LAND
Azerbaijan	86,600	10,205,810	23%
Hungary	93,028	9,771,827	49%
Jordan	89,342	10,820,644	2%

1. Compare the arithmetic density of Azerbaijan and Jordan.
2. Explain which country's population of those listed in the table exerts the least pressure on its land.
3. Explain the limitations of arithmetic density in providing a way to understand the pressures the population exerts on the land.



## TEACHING NOTES

**SLIDE 1:** It's important that students understand that density only tells us the number of objects (here, people) within a space, while distribution tells us how they are arranged within that space. In discussing this slide with students, review scale of analysis, regions, and types of thematic maps. You might also ask why the author of the activity chose China as the focus of map B (largest population in the world; pop. is not distributed evenly throughout the country). A visualization of the population of each country having one million or more people can be found here: [Mapped: The World's Most Populous Countries, in Ascending Order](#) A good cartogram of population can be found here: [This Fascinating World Map was Drawn Based on Country Populations](#). You could have students consider the strengths of the cartogram of population vs the choropleth map. To enhance the activity, provide students with a reference (physical/political) map of China, such as the one found here: <https://www.worldometers.info/maps/china-map/>. Have students examine the relationship between physical geography and cities in China.

*suggested answers* (please note, students will be tempted to write things like *Map A shows density and Map B shows distribution*. That answer would be barely sufficient if the command verb were *identify*, but students are being asked to explain, so they must indicate an understanding of how they know Map A shows density and Map B shows distribution; they must be guided to write answers as detailed as the suggested answers):

- 1) Map A is a choropleth map that displays population density. According to the legend, the countries shaded darker green have higher numbers of people per unit of area (sq km, removed from map so as not to give away the answer). The country with the highest population density in the world visible on the map is Bangladesh. Map B uses dots to show where people actually live within China, so it displays distribution.
- 2) With respect to concentration, one of the properties of distribution, population in China is clustered in the eastern part of the country, particularly on or near coasts (and rivers, which you can't really see in the map). It is particularly clustered in the northeast regions and in the south near Hong Kong.
- 3) China has almost 1.4 billion people. Due to the sheer size of its population, it has a relatively high population density, although because it's quite large in area, its population density isn't as high as we might think it is. However, that number tells us nothing about where and how people are actually living within China, so population distribution is a much more useful measure. Nearly all sizeable cities in China are located in the east. The west is sparsely populated.

### SOURCE:

slide 1: ourworldindata.org, World Population Estimate 2016 from Esri/ArcGIS

## TEACHING NOTES

**SLIDE 2:** This slide contains no information about agricultural density, or the number of farmers per unit of arable land, but you might challenge students to predict which country has the highest agricultural density. Ask them what additional information they would need, if any, to reasonably predict that number. Guide them to see that the number of farmers per unit of arable land is generally dependent on economic development; more resources available to devote to things such as machinery means fewer people are engaged in agriculture. *suggested answers:*

1) Arithmetic density is calculated by dividing area by total population to give us an average number of people per square kilometer. Jordan is slightly larger than Azerbaijan by about 2700 sq km. Jordan's population is also slightly larger by about 615 million. Therefore, Jordan and Azerbaijan have roughly the same arithmetic density. (You may point out that Jordan's population is a little harder to measure accurately given its proximity to Syria and resulting in migration due to the civil war and unrest, but that is not a consideration students can be expected to take into account at this point in the year.)

2) Among Azerbaijan, Hungary, and Jordan, Hungary's population puts the least pressure on the land. Though the three countries are roughly the same in size in both population and area, about 46% of its land is arable, or able to be used for farming. This means the physiological density, or people that must be supported by each unit of arable land, is lower than either Azerbaijan or Jordan.

3) Arithmetic density has limited usefulness in helping us understand the pressure the population exerts on the land. It only tells us how many people live in a particular area, but because this land may or may not be arable, we can't judge carrying capacity, or the ability of the land and its resources to support the population, by knowing only the arithmetic density of a particular location.

**SLIDE 3:** An interesting article to supplement this slide can be found here: [People across Africa have to travel far to get to a hospital. We worked out how far](#) Although there aren't any questions about the location of refugee camps, you might ask students to speculate where the refugees are coming from and why the camps are located where they are. *suggested answers:*

1) Lusaka and Copperbelt

2) The most densely populated areas in Zambia are found in the south central part of the country around the capital, Lusaka, and in the north central part of the country near its border with the Democratic Republic of the Congo. These areas of Zambia have more hospitals than the less densely populated provinces, such as Muchinga, which has a low population density, no major towns, and no hospitals.

### SOURCES:

slide 2: map from World Population Estimate 2016 from Esri/ArcGIS; data from CIA World Factbook

slide 3: <https://reliefweb.int/map/zambia/zambia-main-health-facilities-and-population-density-march-2020>

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