



LEVEL

2

Central American Population

from the Esri GeoInquiries™ collection for World Geography

Target audience – World geography learners

Time required – 20 minutes

Activity	Evaluate population increase in Central America over the past two decades.
Social studies Standards	C3:D2.Geo.8.6-8. Analyze how relationships between humans and environments extend or contract spatial patterns of settlement and movement. C3:D2.Geo.12.6-8. Explain how global changes in population distribution patterns affect changes in land use in particular places.
Learning Outcomes	<ul style="list-style-type: none">• Use maps, graphs, and charts to explore population growth of Central American region and countries.• Acquire current population data using data enrichment tools.
Level 2 GeoInquiry Requirements	<ul style="list-style-type: none">• A free school ArcGIS Online organization account. Instructors or students must be signed in to the account to complete this activity.• Less than 1 credit will be used per person in the completion of this activity as scripted.

Map URL: <http://esriurl.com/WorldGeoInquiry13>

? Ask

What was the population in Central America in 1998?

- Click the link above to launch the map.
- In the upper-right corner of the web page, click Sign In and use your ArcGIS Online organization credentials to sign in.
- With the Details button underlined, click the button, Show Contents.
- Pause your pointer over the Country Borders layer and click the Show Table button.
- Click the Population 1998 field header and choose Statistics.
- ? What was the total population of Central American countries in 1998 (Sum of Values)? *[34,880,284]*

🔍 Explore

How did the Central American population grow over the past two decades?

- From the toolbar above the map, click Bookmarks and choose Central America.
- See the Data Enrichment ToolTip on the next page.
- Click Analysis, expand Data Enrichment, and choose Enrich Layer.
- ① From the drop-down list, choose Country Borders.
- ② Click Select Variables, and in the top-right corner, accept Global, and then from the options below, choose Population.
Click Key Global Facts, Key Demographic Indicators, check the Total Population box, and then click Apply.
- ④ Name your new layer.
Leave the Use Current Map Extent box checked so that, in this case, you will compute population for all Central American countries.
Always click Show Credits to ensure acceptable credit usage, and then click Run Analysis.
- Using the table for the population layer that you just created, scroll to the right to Total Population and calculate Statistics.
- ? What was the total population of Central America in 2018? *[48,059,895]*

Acquire

How can we easily visualize change in population from 1998 to 2018?

- Divide the total population in 2018 by 1998.
- ? What was the percentage of growth of Central America between 1998 to 2018? [138%]
- In the Contents pane, uncheck the Country Borders layer box to turn off the layer.
- Under the new Total Population layer, click the More Options button (ellipses) and choose Configure Pop-up.
- Under Pop-up Media, click the Add down arrow and choose Column Chart.
- Check the Pop_Country and the new Total Population layer boxes.
- For Caption, type **Pop Change from 1998 to 2018**, and then click OK twice.

Analyze

Which countries in Central America had the largest/smallest population?

- In the map, click any country in Central America.
- Scroll down the pop-up and pause your pointer over each column in the chart.
- ? What was the population in 1998? 1999? [Answers will vary depending on which country students choose.]
- Continue clicking each country to view the chart in each pop-up.
- ? Which country had the largest population in 2018? Smallest population? [Guatemala, Belize]

Act

Which countries in Central America grew the fastest in those 20 years?

- Repeat the process from the previous section and note the graphs in the pop-ups.
- ? Which country grew the most and by what percentage? [Guatemala, 154%]

DATA ENRICHMENT

- Choose the layer to Enrich and click Select Variables.
- Choose the geographic area on top right and Key Global Facts.
- Click on text, Key Demographic Indicators. Choose from instructions.

POP-UPS AND COLUMN CHARTS

- On the layer, choose More Options button (ellipses) and Configure Pop-up.
- Under Pop-up Media, click the Add down arrow and choose Column Chart.
- Check the layer boxes and type in caption.
- Click OK twice to save..

Next Steps

DID YOU KNOW? ArcGIS Online is a mapping platform freely available to public, private, and home schools. A school subscription provides additional security, privacy, and content features. Learn more about ArcGIS Online and how to get a school subscription at <http://www.esri.com/schools>. THEN TRY THIS...

- To see the rate of population increase of each country, click the More Options button (ellipses) for the new population layer and choose Configure Pop-up.
- Under Pop-up Media, click the Add down arrow and add a new Column Chart.
- For Normalize By, choose Pop_Cntry.

TEXT REFERENCES

This GIS map has been cross-referenced to material in sections of chapters from these middle school texts.

- *World Cultures and Geography* by McDougal Littell
- *My World Geography* by Pearson