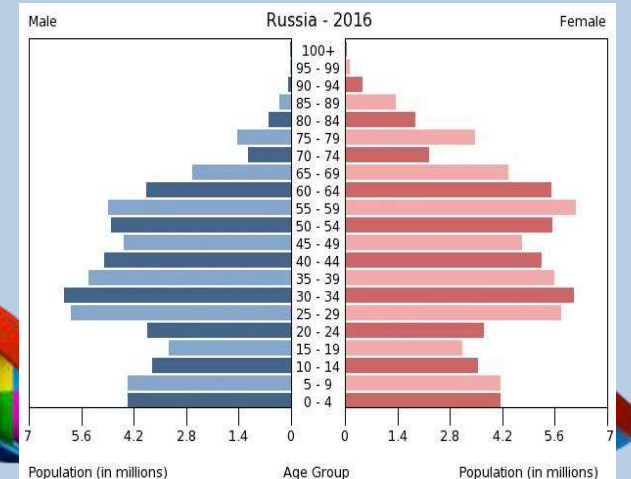
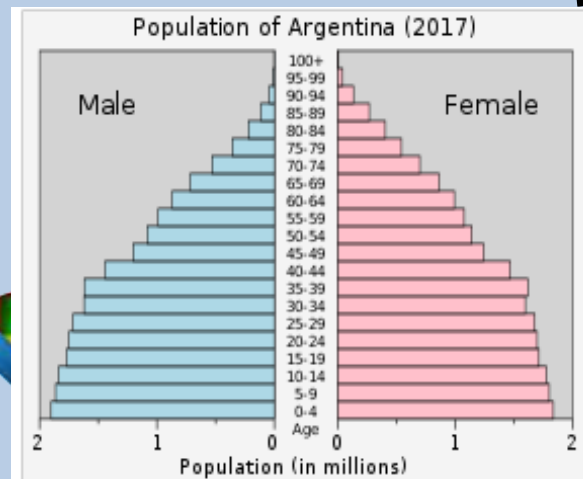
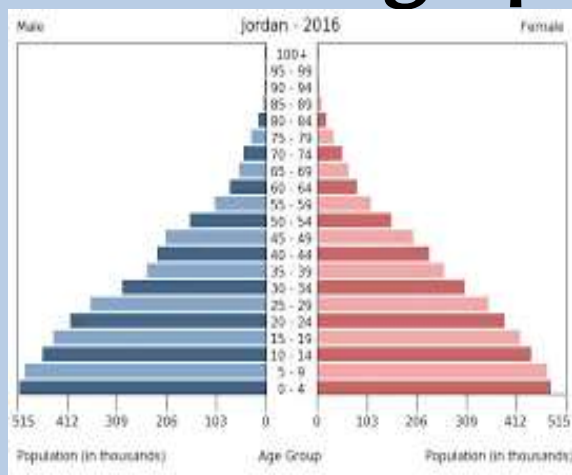
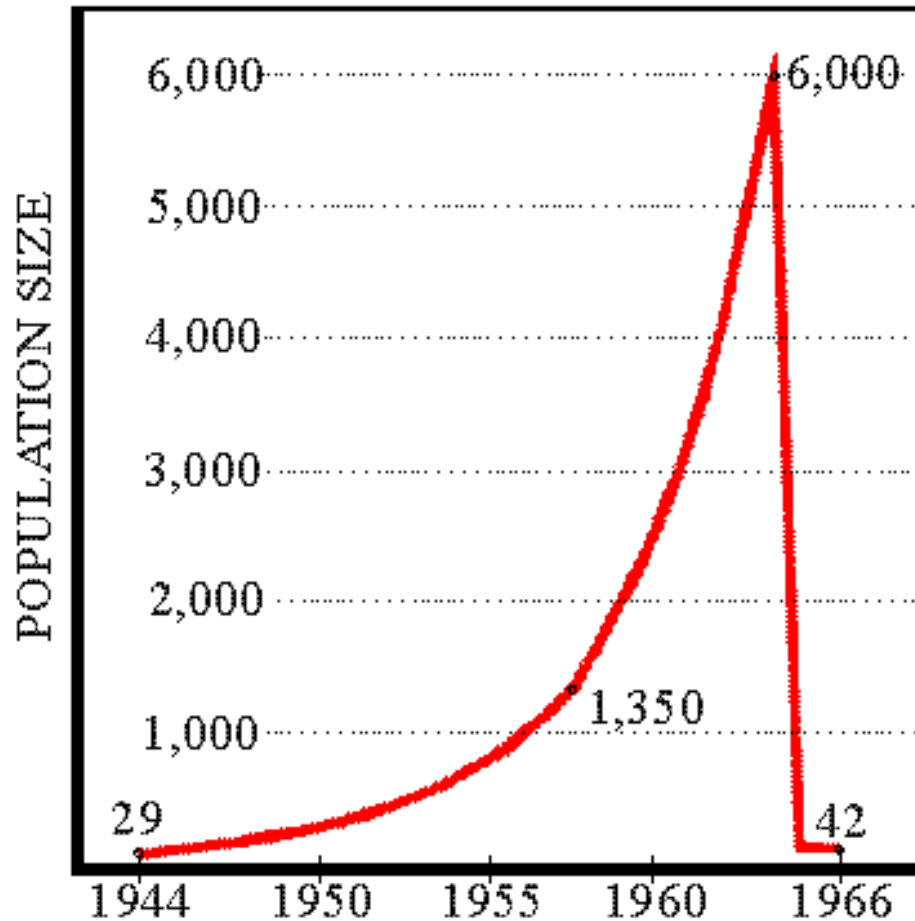


1. What can happen when a population goes over its carrying capacity?
2. What 5 factors affect a country's population growth?
3. Label the following countries as developing or developed, and estimate what stage of demographic transition they are in:



Human Population Growth



Assumed population of the St. Matthew Island reindeer Herd. Actual counts are indicated on the population curve.

Human Population Growth



Human Population Growth

- Population growth in countries also depends on **culture, conflict, politics, economy, and resources**

Logistics

- You guys did awesome on the unit 2 test!
- Last day to retake or turn work in is NOVEMBER 22nd

Logistics

- **Welcome to Unit 3!**
- **Tape this over sheet down onto
page 27**

Human Population Growth

- Get out the assignment from *Friday Simulation: Investigate Population Growth Rates*

Human Population Growth

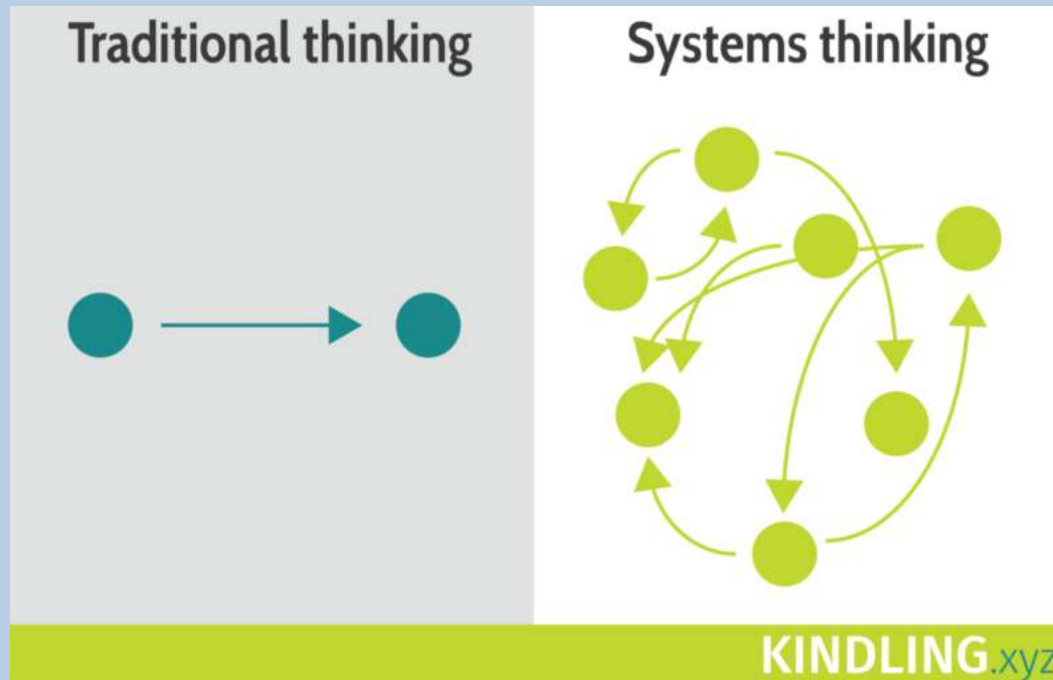
- ***Tape Simulation: Investigate Population Growth Rates onto page 28 (Title Human Pop. Growth)***

Demography

- **Why should biologists study human populations?**

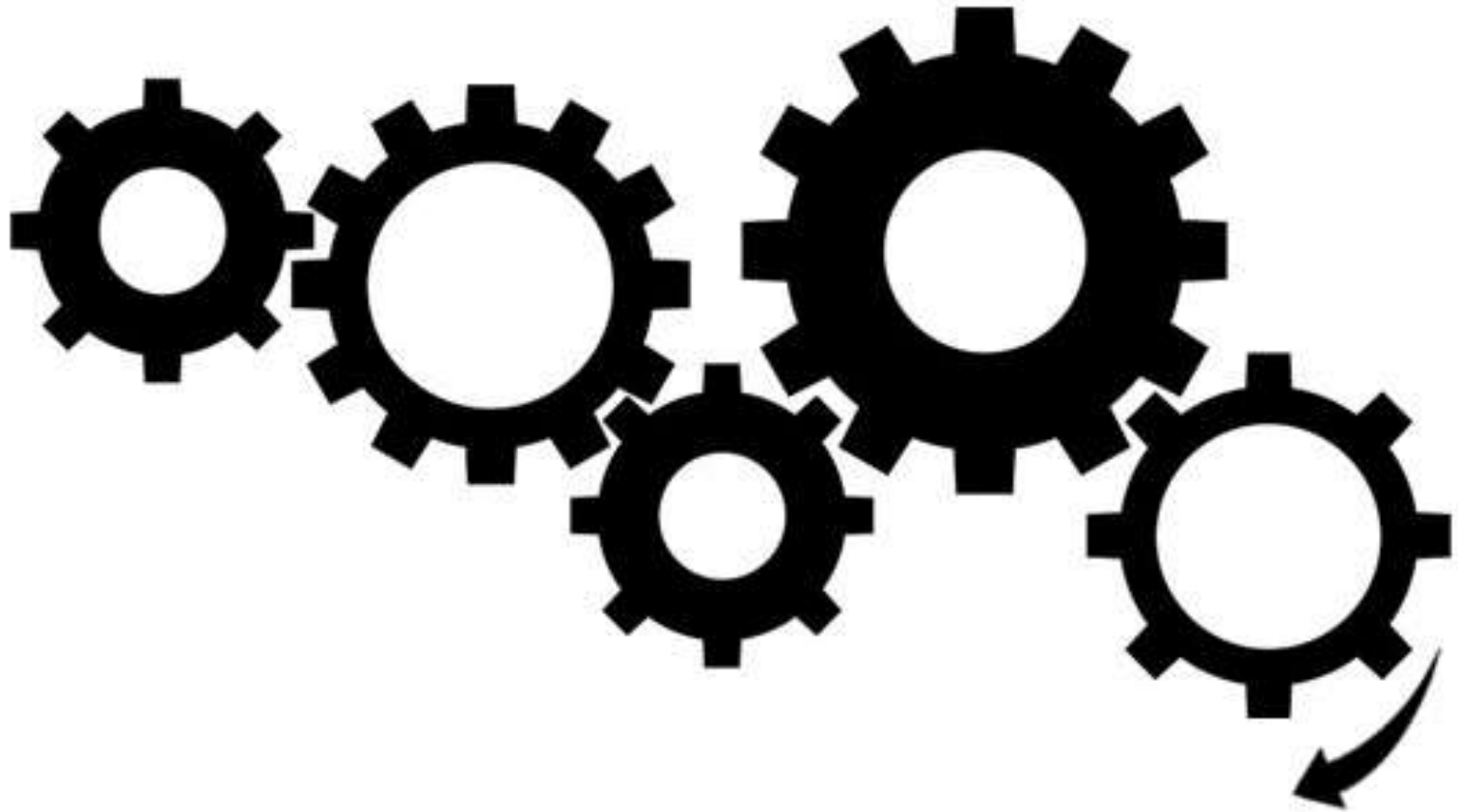
Demography

- **SYSTEMS THINKING!** To understand the impact that a population has on an ecosystem the population must be understood



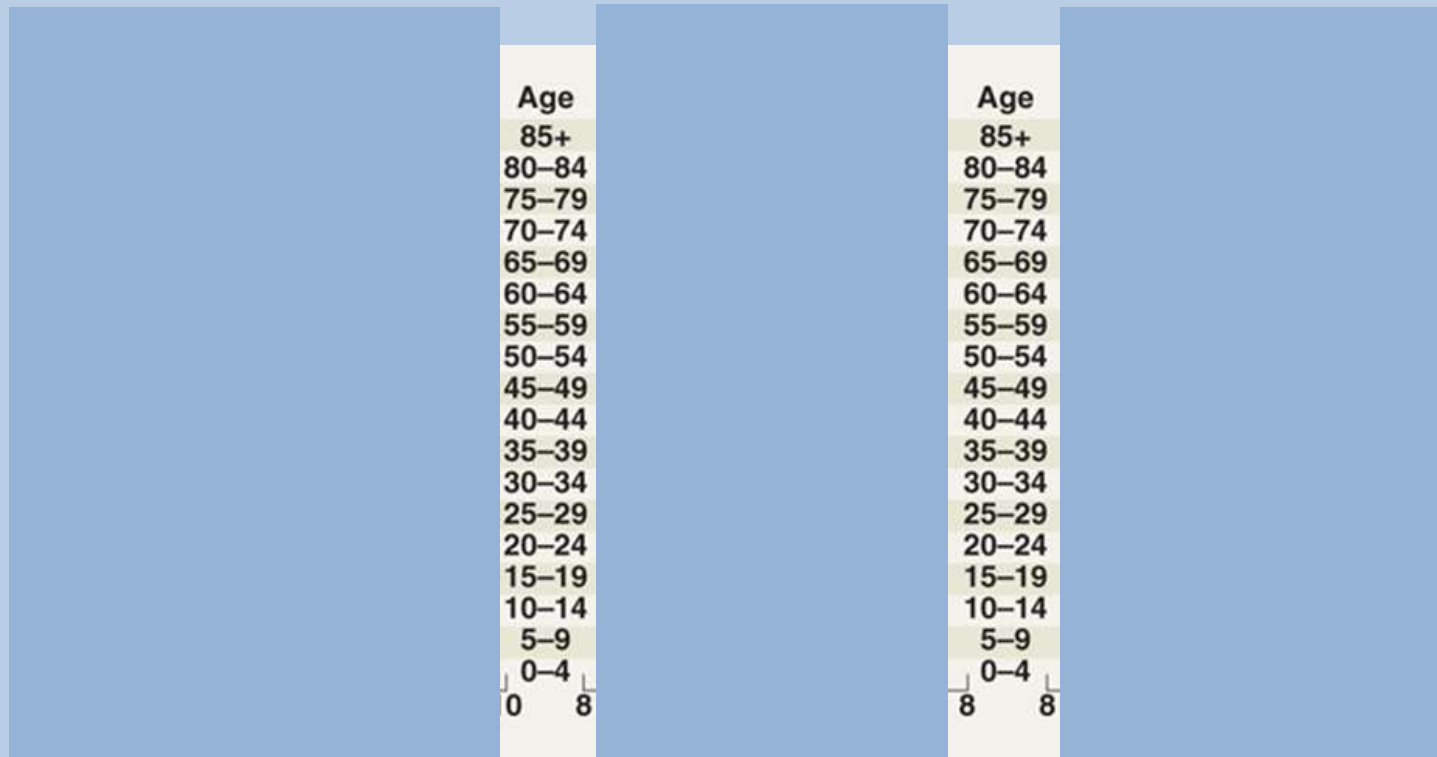
Demography

- **SYSTEMS THINKING!**



Demography - Age Structure

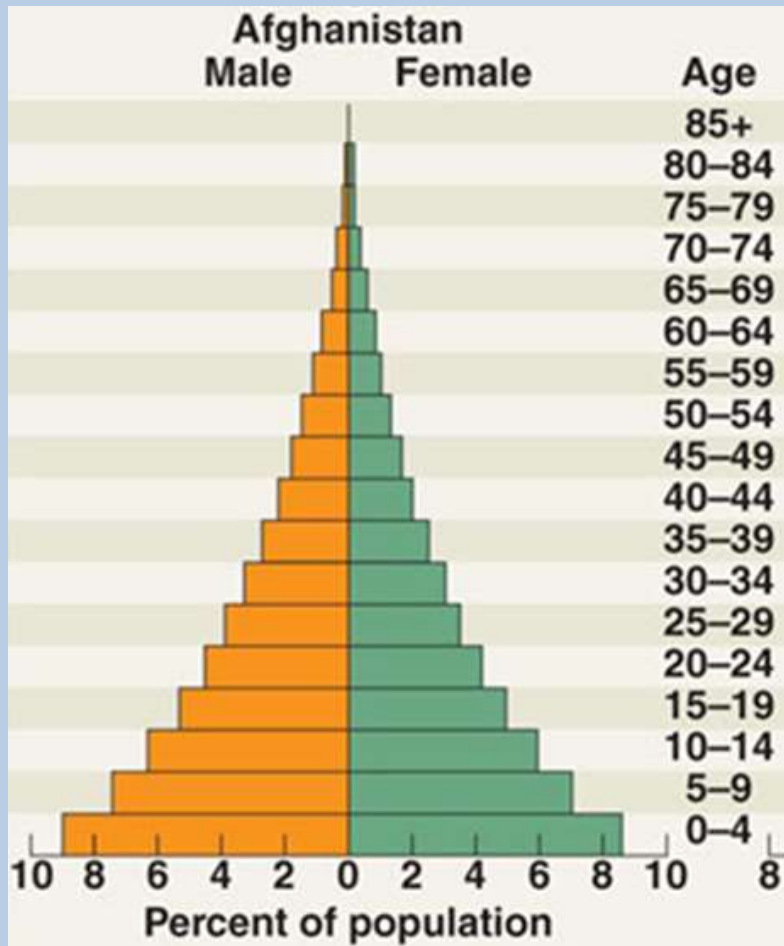
- Shows the proportion of males and females in specific age brackets in a population
 - Indicator of the rate of a population's growth



Age Structure - Sex Ratio

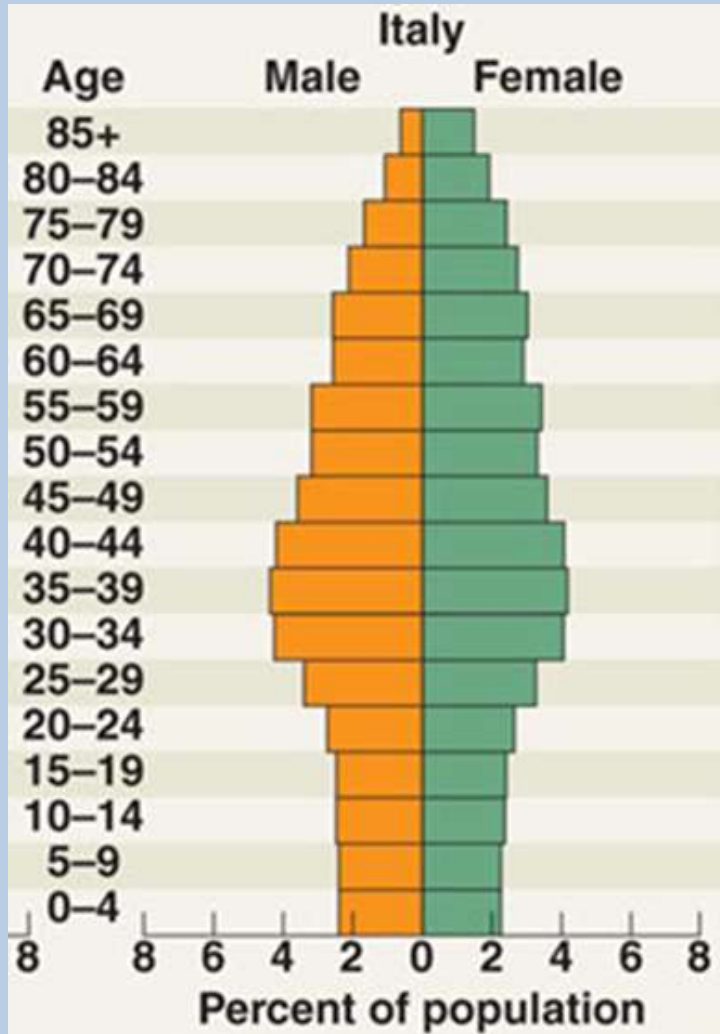
- Ratio of males to females
 - Typically close to 50:50 in a sexually reproducing species
- Used as an indicator for how many offspring produced in the next generation
- WHY WOULD BIOLOGISTS BE INTERESTED IN THE NUMBER OF OFFSPRING PRODUCED IN THE NEXT GENERATION?

Age Structure



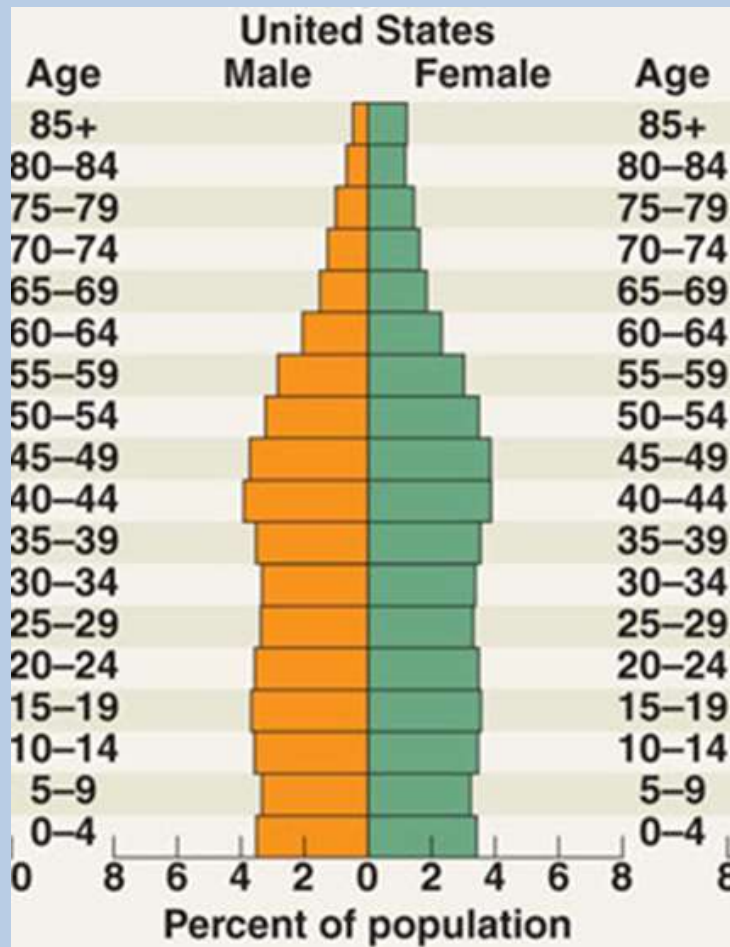
- What is this showing you?
- Would this population be increasing, decreasing, or stable?

Age Structure



- What is this showing you?
- Would this population be increasing, decreasing, or stable?

Age Structure



- What is this showing you?
- Would this population be increasing, decreasing, or stable?

Human Population Growth

- **Simulator:**

https://www.ined.fr/en/everything_about_population/population-games/tomorrow-population/

Human Population Growth

- **Just like you learned yesterday, population growth in countries depends on factors other than birth, immigration, death, and emigration. What were those factors?**

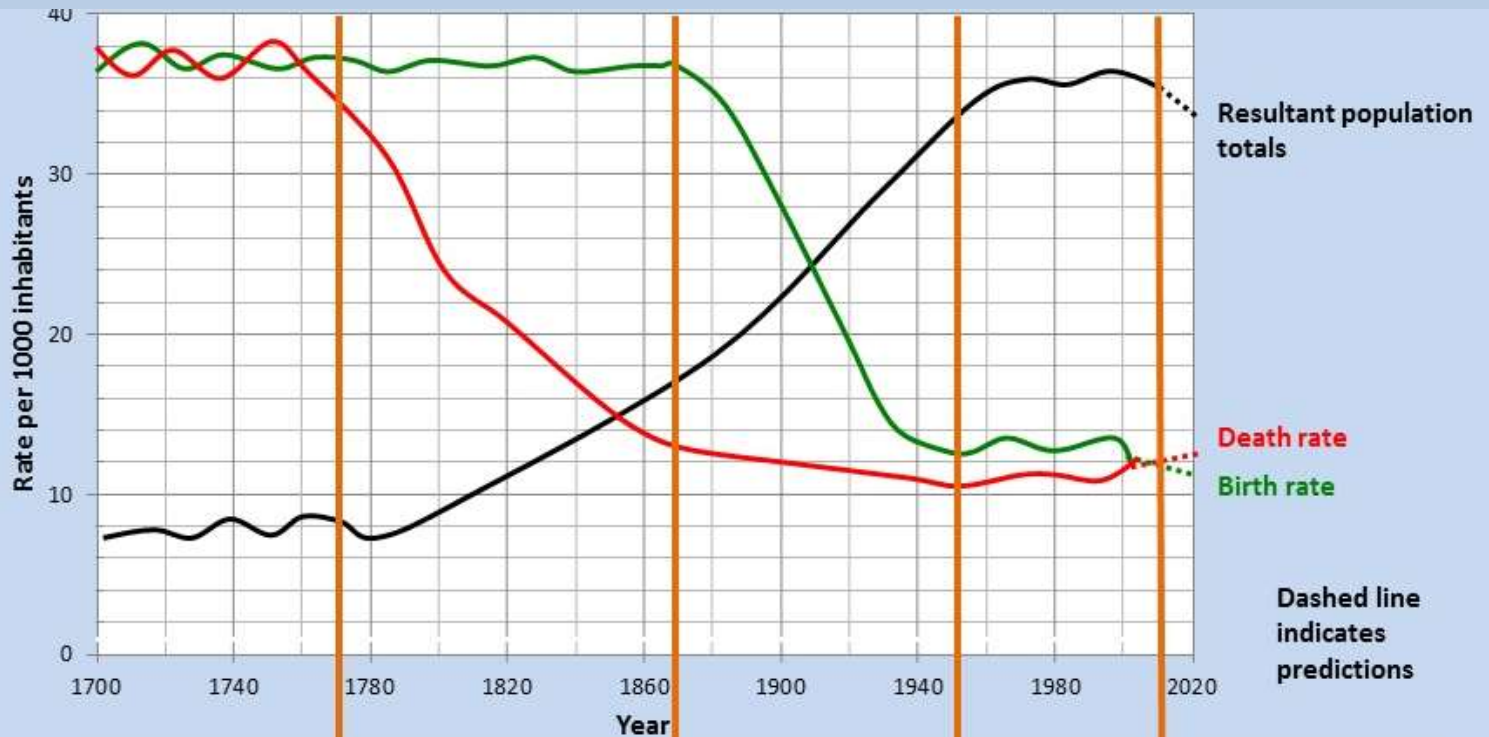
Human Population Growth

- Population growth in countries also depends on **culture, conflict, politics, economy, and resources**

Human Population Growth

- To represent this, scientists use a demographic transition model
- Demographic transition: change in a population from high birth and death rates to low birth and death rates

Demographic Transition Model



Stage 1 – High fluctuating	Stage 2 – Early expanding	Stage 3 – Late expanding	Stage 4 – Low fluctuating	Stage 5 – Decline?
UK pre 1760	UK 1760 to 1870	UK 1870 to 1950	Post 1950	Soon?

Demographic Transition Model



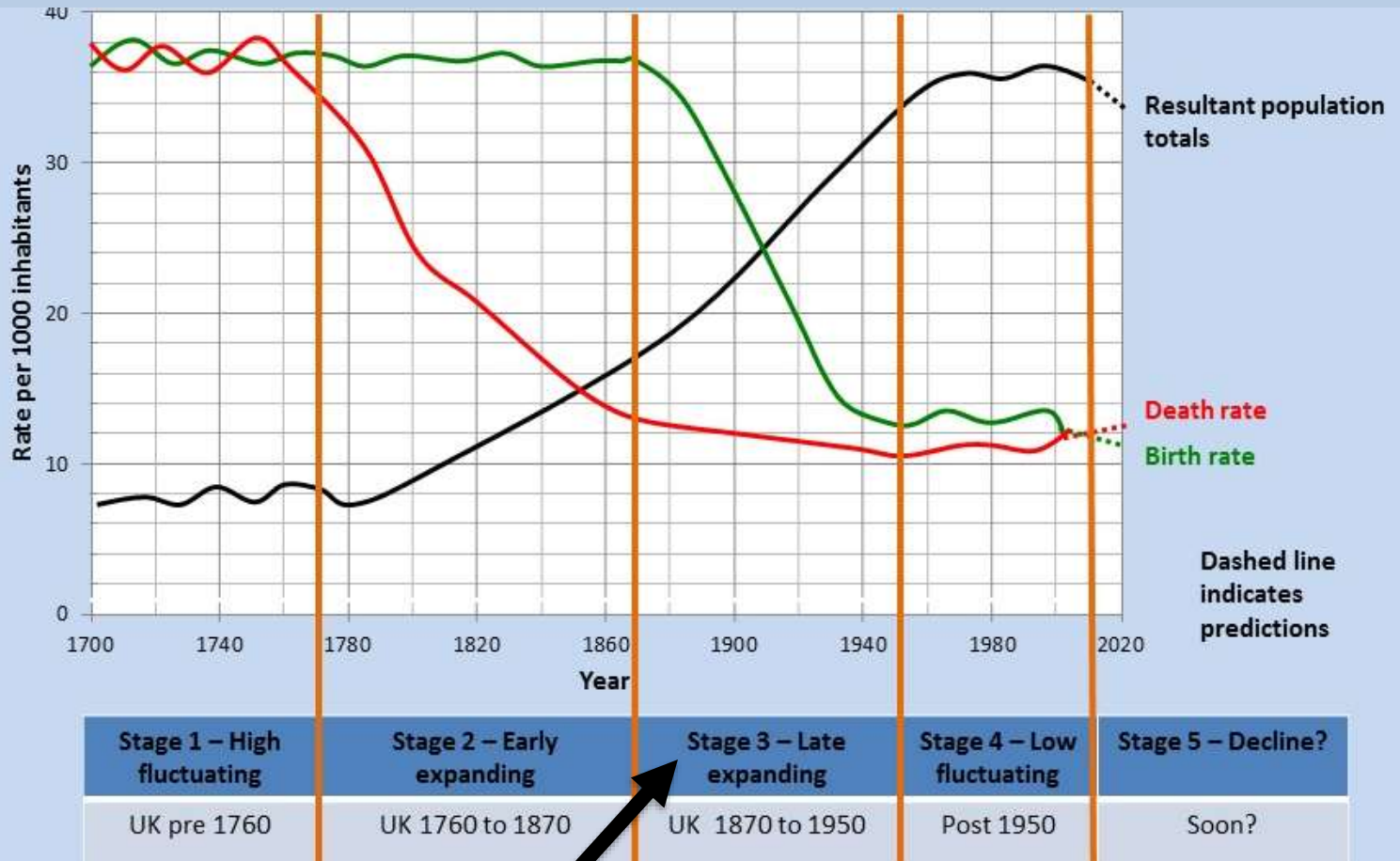
- Would this population be increasing, decreasing, or stable?

Demographic Transition Model



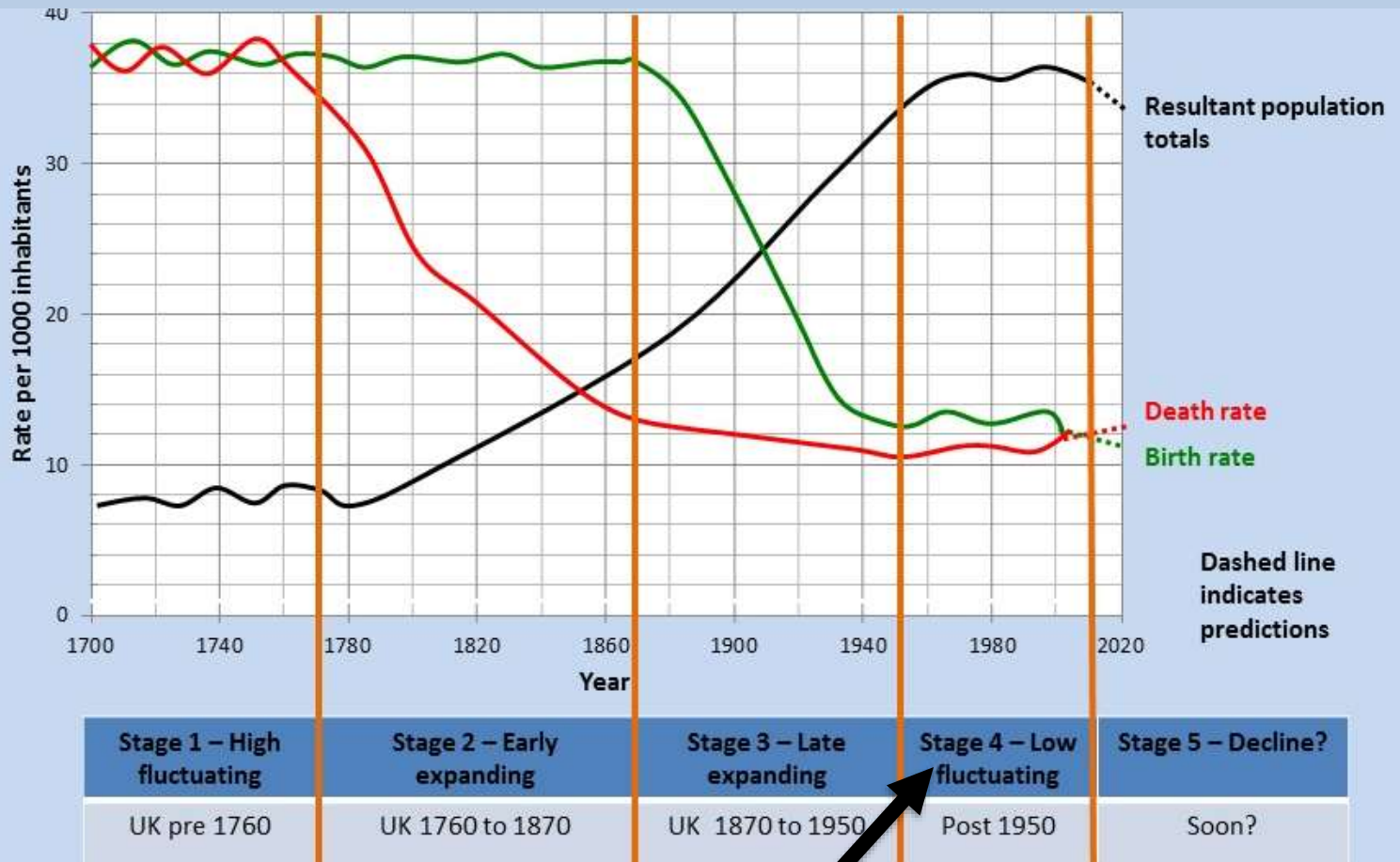
- Would this population be increasing, decreasing, or stable?

Demographic Transition Model



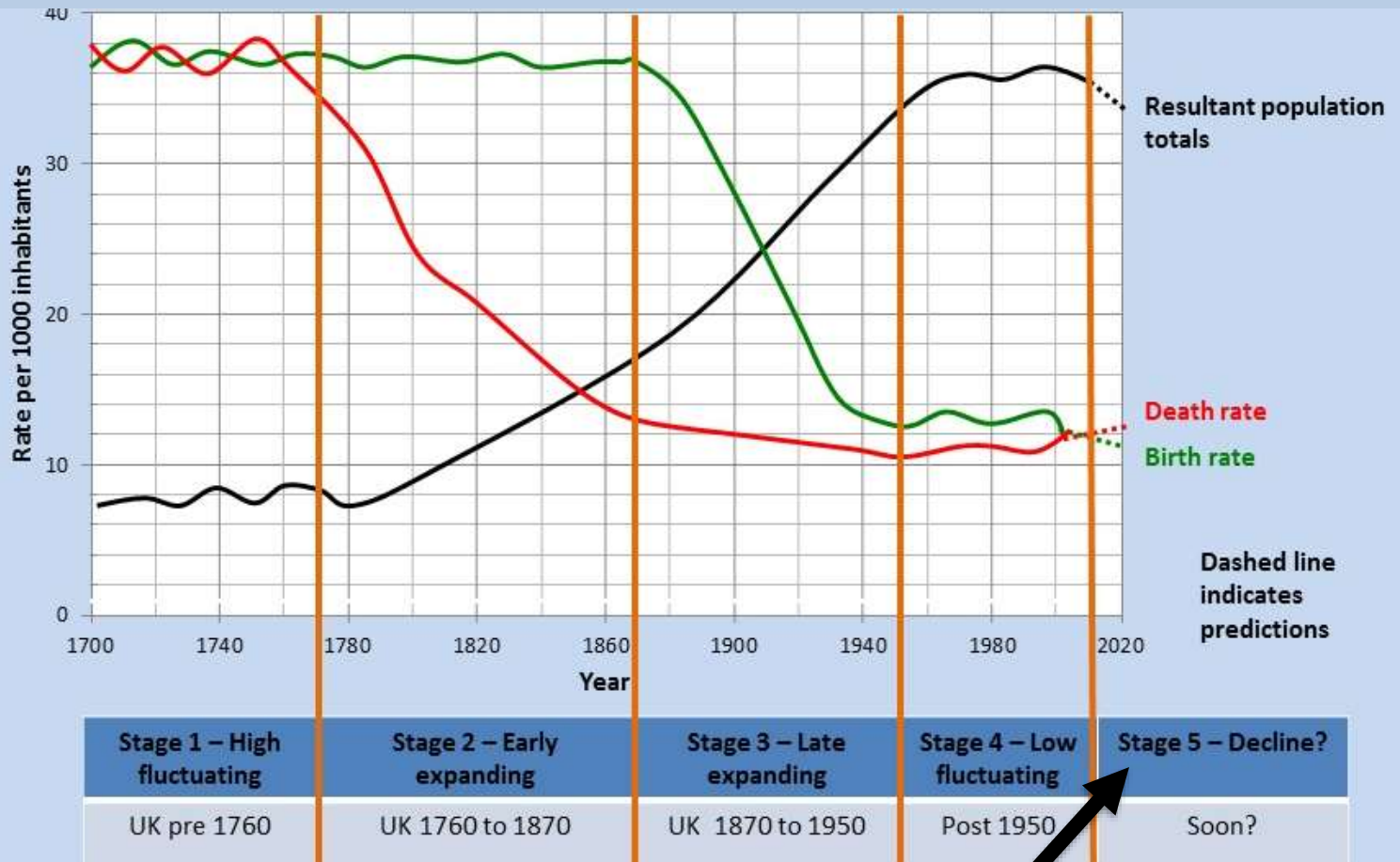
- Would this population be increasing, decreasing, or stable?

Demographic Transition Model



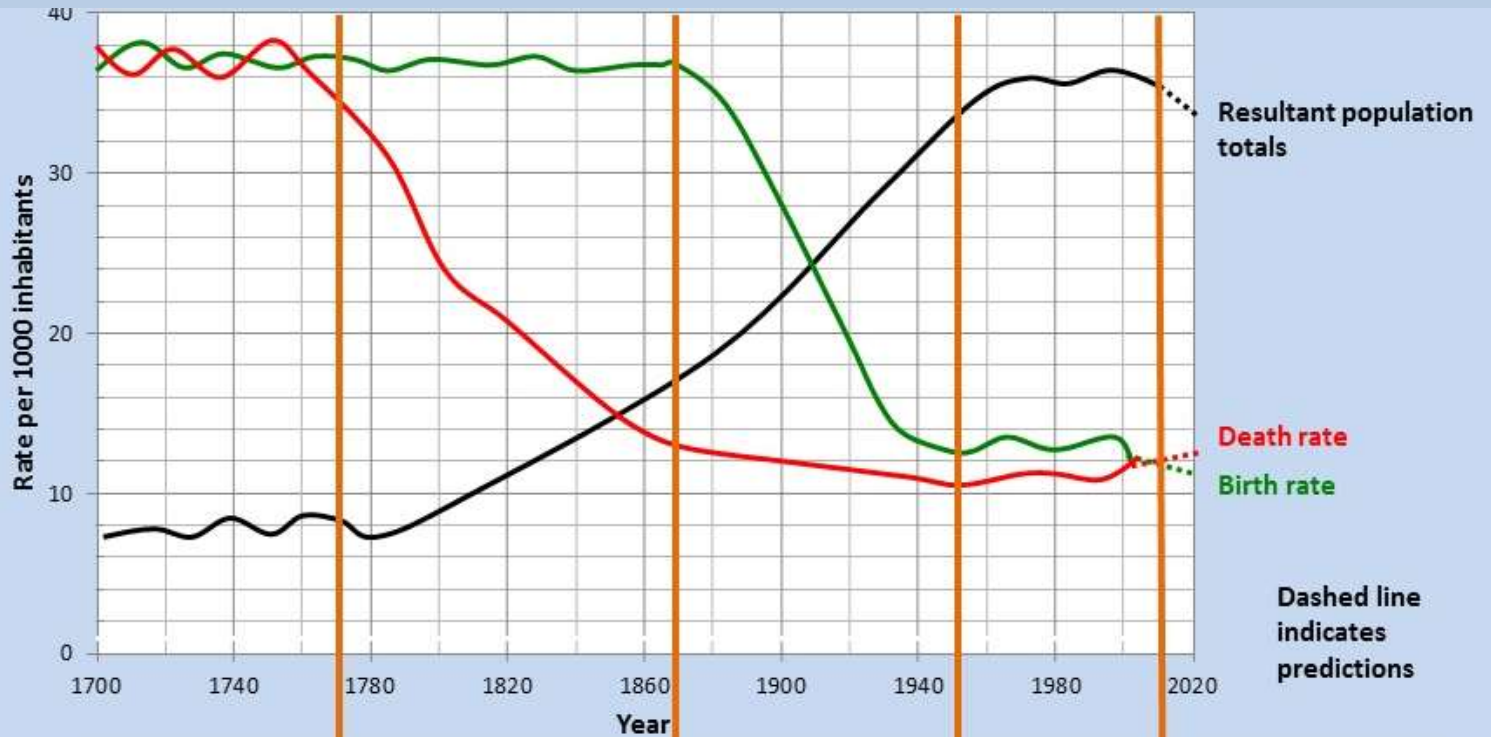
- Would this population be increasing, decreasing, or stable?

Demographic Transition Model



- Would this population be increasing, decreasing, or stable?

Demographic Transition Model



Stage 1 – High fluctuating	Stage 2 – Early expanding	Stage 3 – Late expanding	Stage 4 – Low fluctuating	Stage 5 – Decline?
UK pre 1760	UK 1760 to 1870	UK 1870 to 1950	Post 1950	Soon?
Amazon Basin tribes	Ethiopia	India	UK	Russia
				

Population
Pyramid shape

Demographic Stages

- There are 4, possibly 5 demographic stages:

<https://www.youtube.com/watch?v=HQIpdtUXeiU&t=166s>



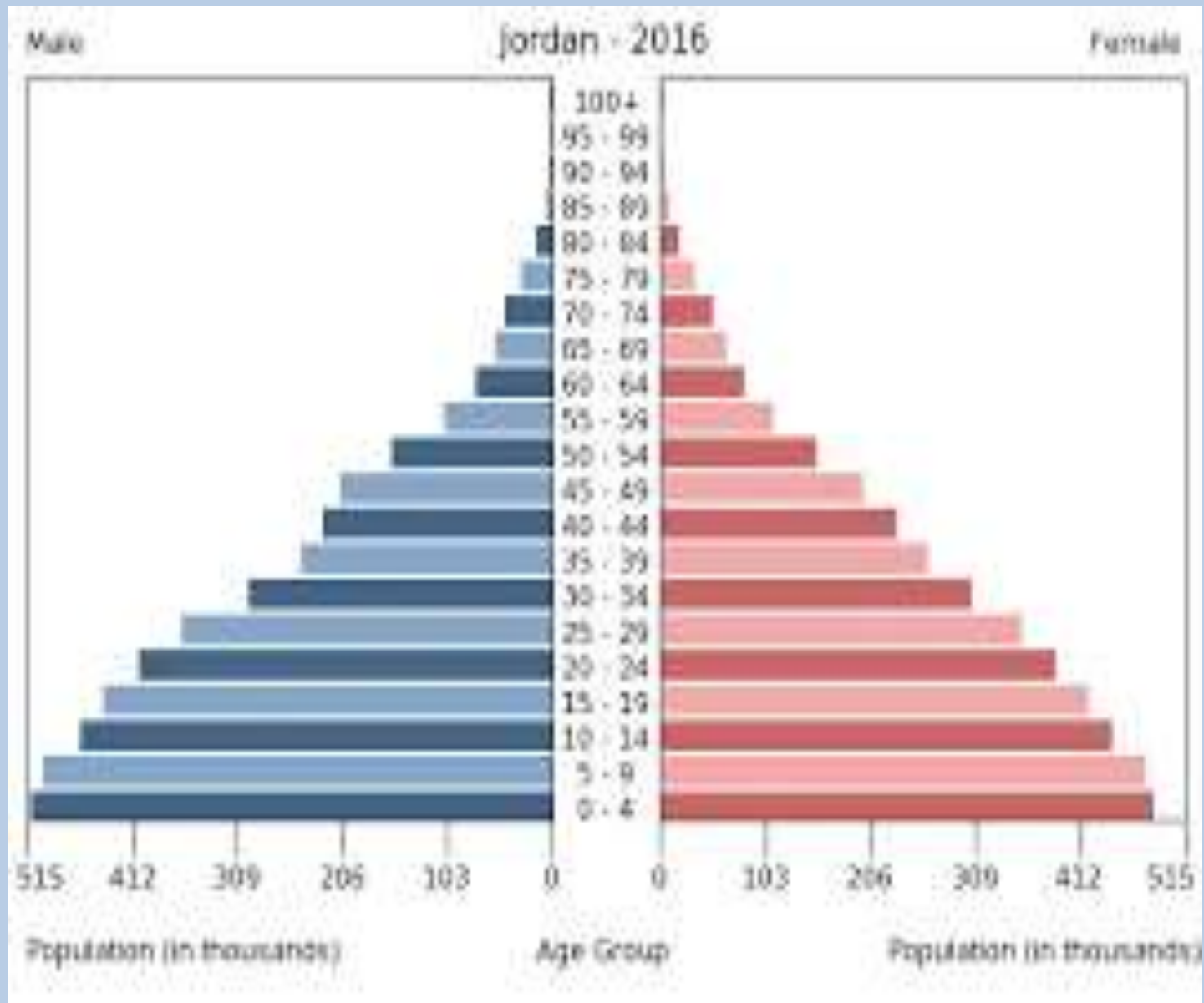
INTERMISSION



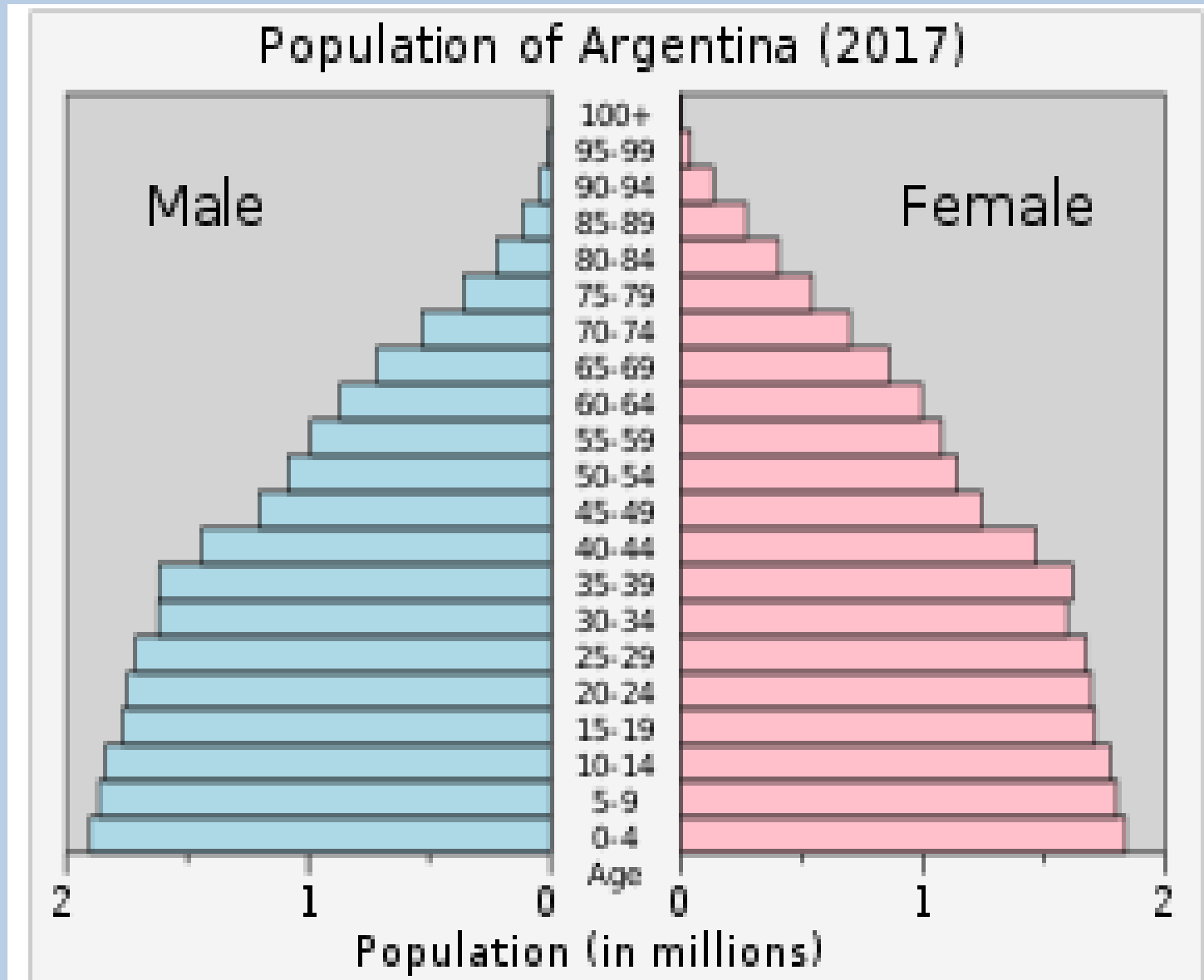
Demographic Stages

- **Picture quiz: Give the demographic transition stage for each country based on the age structure chart**

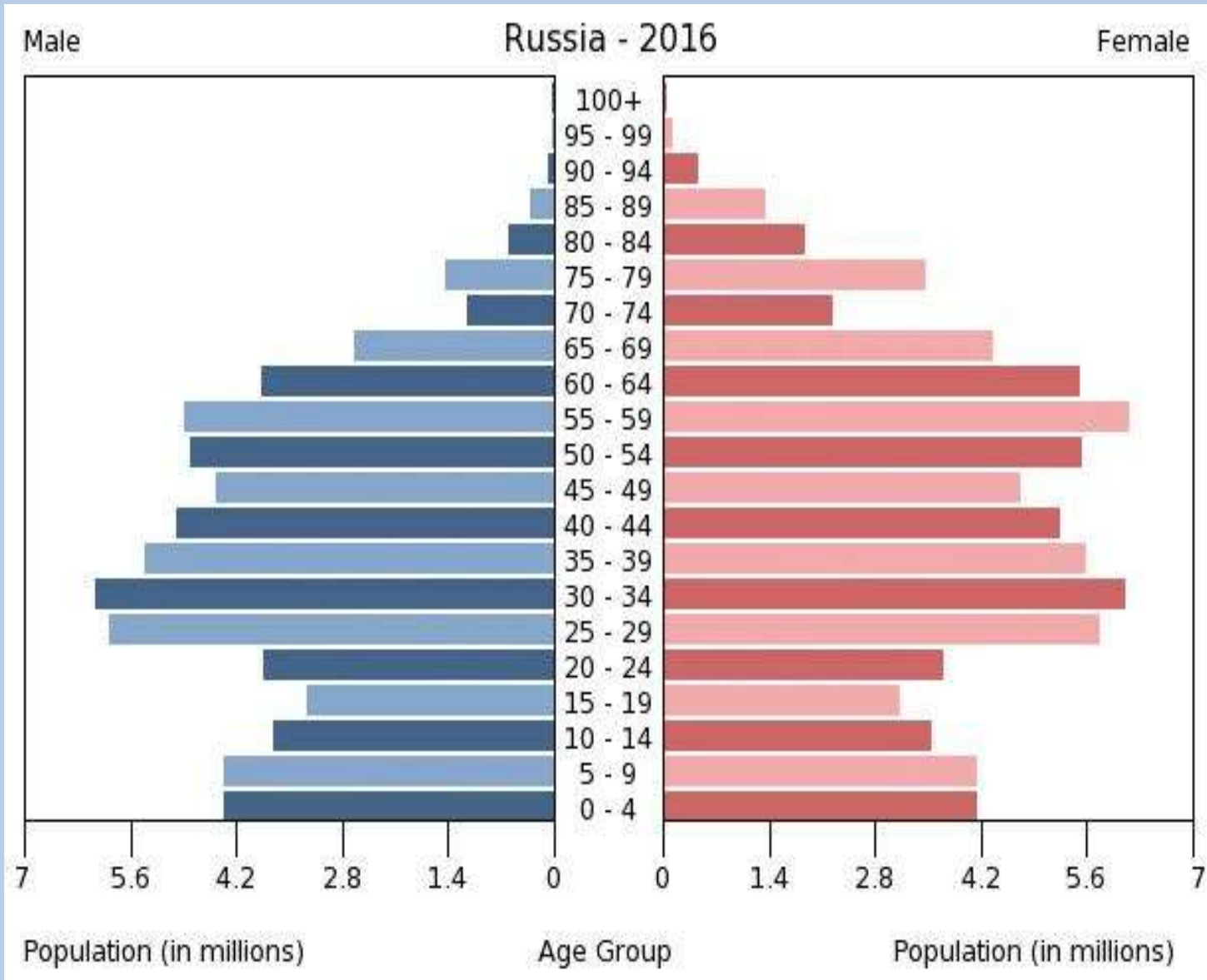
Demographic Stages



Demographic Stages



Demographic Stages



Human Population Growth

- Which 5 factors affect population growth?

Human Population Growth

- Which 5 factors affect population growth?
- *Birth rate, death rate, immigration, emigration, limiting factors*
- Might there be anything else that affects the growth rate of *humans*?

Human Population Growth

- Population growth in countries also depends on **culture, conflict, politics, economy, and resources**

Demographic Stages

- To understand the differences between the stages, *as well as the reasons a society enters each stage*, we will be completing an activity in groups

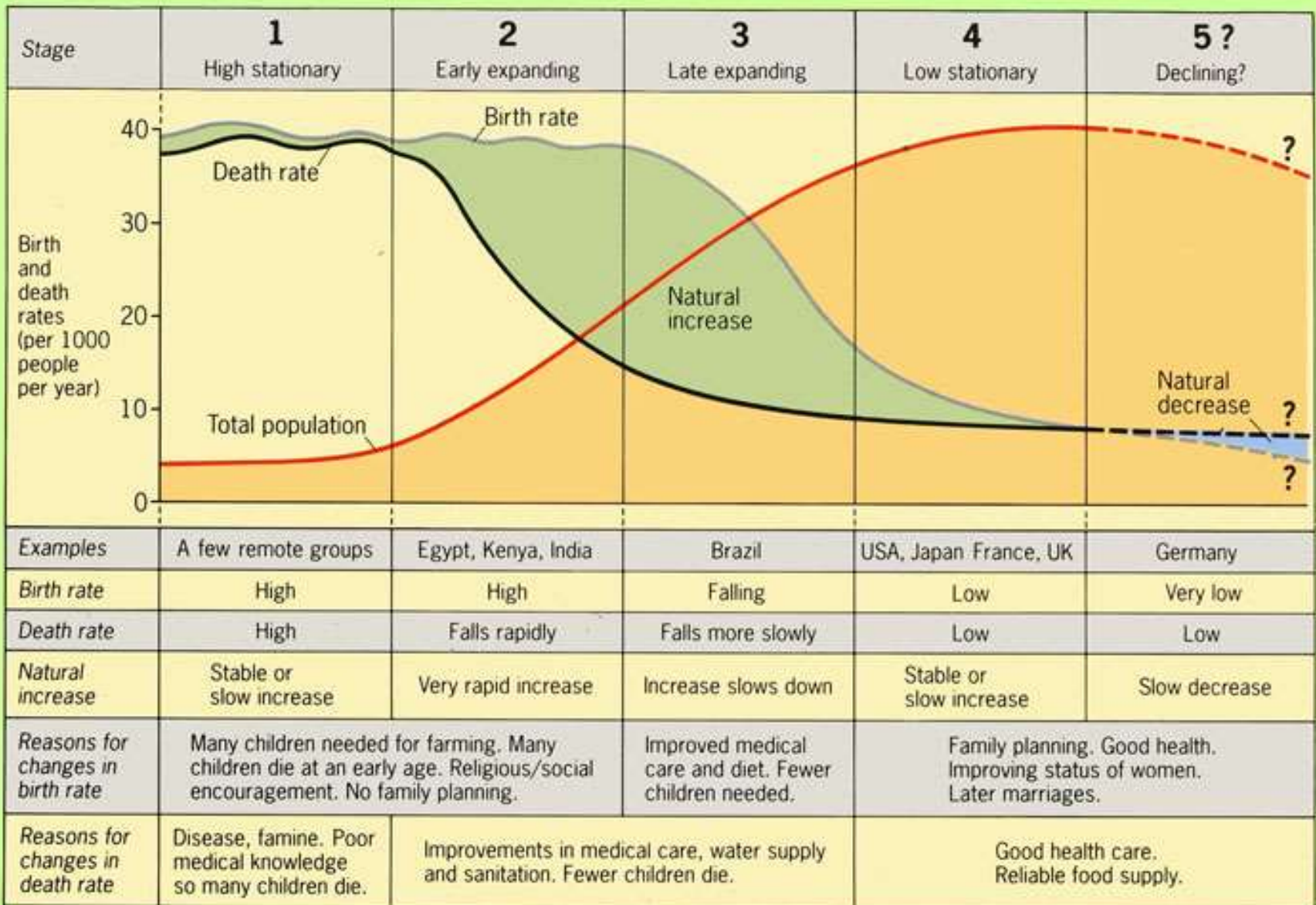
Demographic Stages

- **With your lab group:**
 - **Place the characteristics with the appropriate stage**

Demographic Stages

- **Let's go over the characteristics of each stage**

Demographic Transition Model



Demographic Transition Model

Demographic transition in 5 countries, 1820-2010¹²

Our World
in Data

The Demographic Transition in 5 Countries

The Demographic Transition refers to the transition from high birth & death rates to low birth & death rates. It is shown here for five countries that achieved the transition one after the other.



Data source: The data on birth rates, death rates and the total population are taken from the International Historical Statistics, edited by Palgrave Macmillan (April 2013).

The interactive data visualisation is available at OurWorldinData.org. There you find the raw data and more visualisations on this topic.

Licensed under CC-BY-SA by the author Max Roser.

World Population

- **What is the current world population?**

World Population

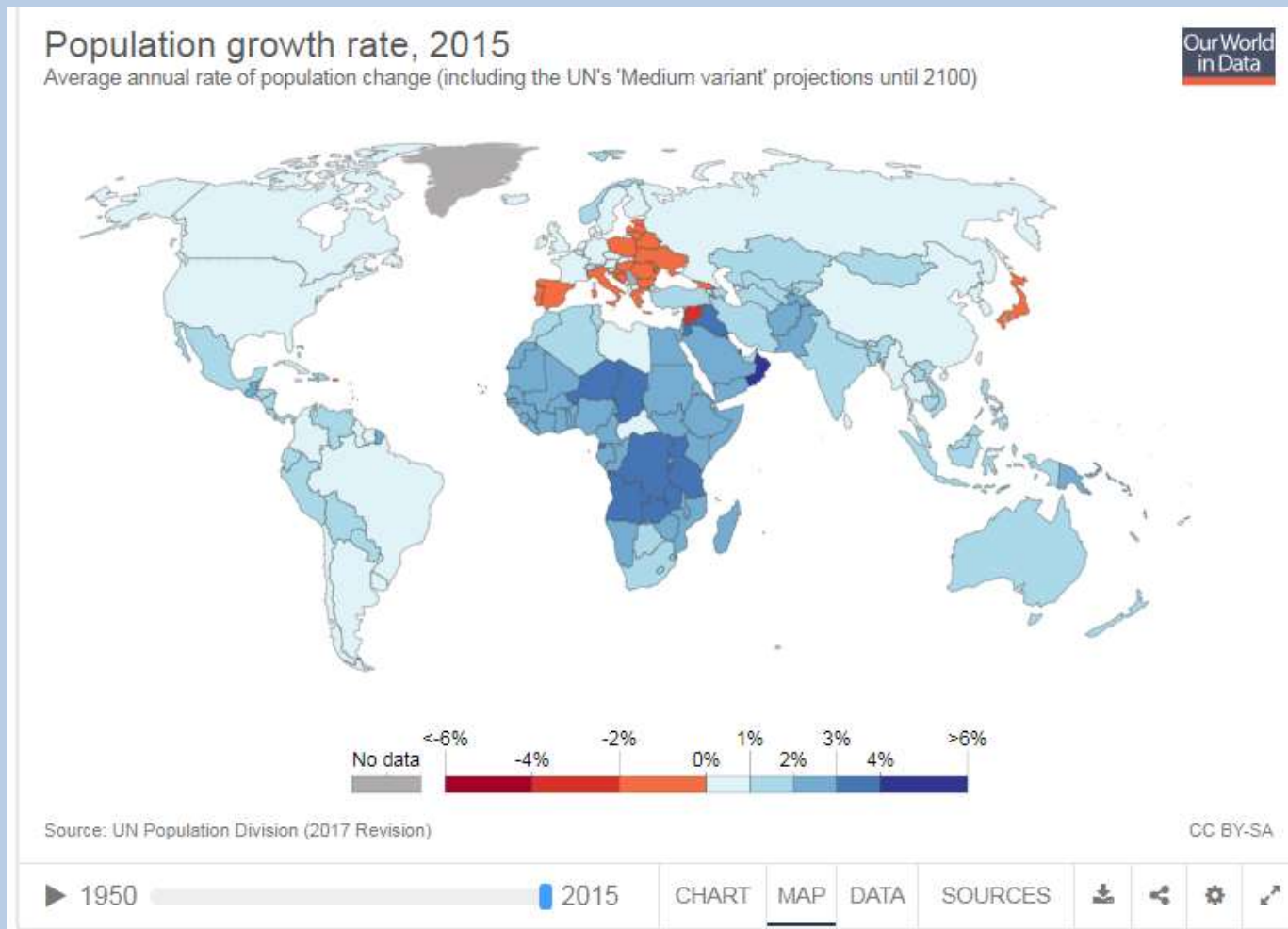
- <https://www.worldometers.info/watch/world-population/>
- https://www.theworldcounts.com/counters/shocking_environmental_facts_and_statistics/world_population_clock_live

World Population

- **Is the world's population increasing, or decreasing?**

World Population

- **INCREASING**



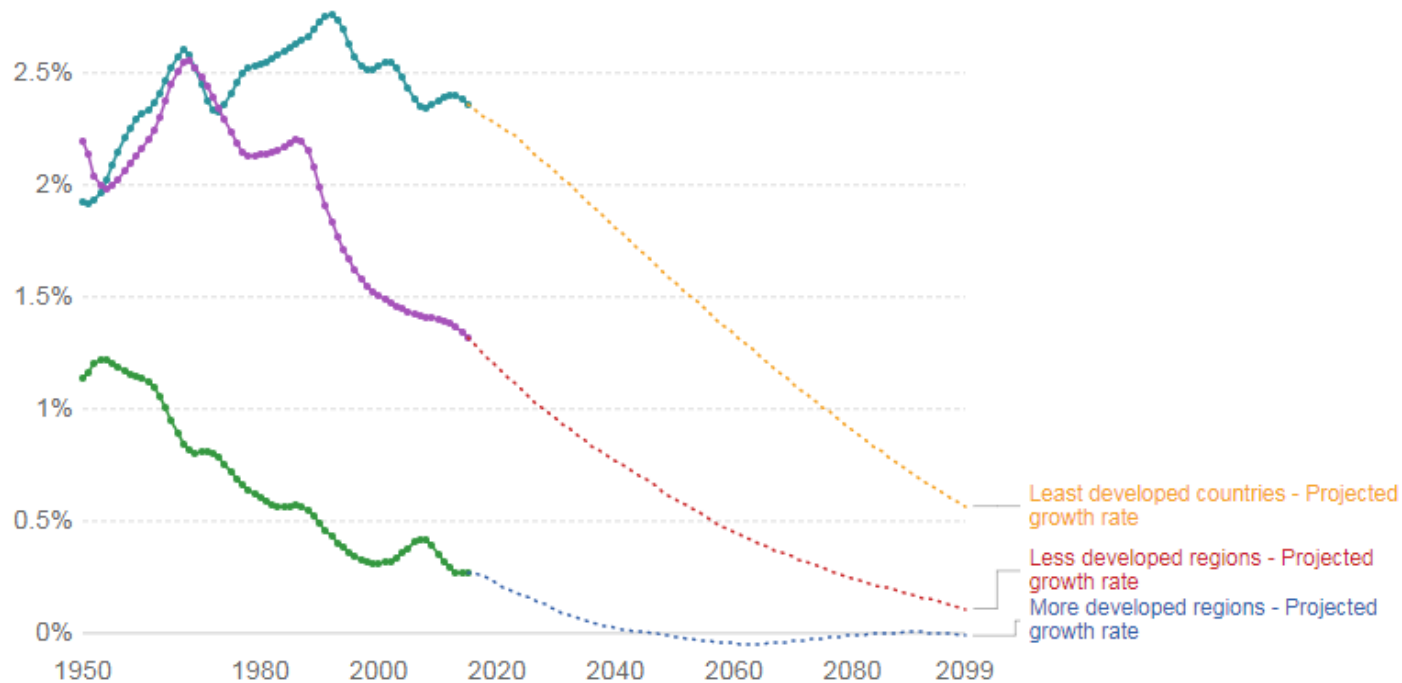
World Population

- **INCREASING**

Population growth rate by world region, 1955-2015 and projections through 2100

Projections use the UN medium variant

Our World
in Data



Source: UN Population Division (2017 Revision)

Note: More developed regions comprise Europe, Northern America, Australia/New Zealand and Japan; less developed regions comprise all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean plus Melanesia, Micronesia and Polynesia; least developed countries are 48 countries, 33 in Africa, 9 in Asia, 5 in Oceania plus one in Latin America and the Caribbean.

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CHART

DATA

SOURCES



World Population

- Is human population growth sustainable?

<https://www.youtube.com/watch?v=pzxREH08Ekl>