Changing population

IB DP Geography core unit 1: population distribution, change, policy and migration

Changing population

- explain the physical and human factors behind where people live;
- calculate birth, death and **natural increase** rates, fertility and **doubling time**;
- use the **demographic transition model** and population pyramids, and calculate a dependency ratio;

Changing population (2)

- evaluate policies for ageing and youthful populations;
- explain the causes and effects of migration.

Where people live

- **Population distribution** is the pattern of where people live.
- It depends on **physical factors** (climate, water, relief and soil) and **human factors** (jobs, transport, history and government policy).
- In China, about 94% of people live east of the "Hu Line", a line drawn from Heihe in the north-east to Tengchong in the south-west, on about 43% of the land.
- The west is high, dry and cold.

$$\text{density} = \frac{\text{population}}{\text{area}}$$

Measuring population change

- **Natural increase** $= 24 - 8 = 16$ per 1,000 $= 1.6\%$ a year.
- **Doubling time** $\approx 70 \div$ growth rate in $\% = 70 \div 1.6 \approx 44$ years.

How populations change

- The **demographic transition model** (DTM) shows how birth and death rates change as a country develops:
- *Demographic transition: death rates fall before birth rates, and the gap is population growth*
- The model is based on European history.
- It does not include migration, and it does not say how long each stage lasts: China passed through stages 2 to 4 in about 50 years, much faster than Britain.

$$\text{dependency ratio} = \frac{\text{aged 0–14} + \text{aged 65 and over}}{\text{aged 15–64}} \times 100$$

Challenges and policies

- **Ageing populations** have more older people: Japan had about 29% of its people aged 65 and over in 2023.
- Problems: fewer workers, more spending on pensions and health care.
- Opportunities: older people care for grandchildren and volunteer, and "silver" industries grow. **Youthful populations** need schools and jobs; without jobs, young people may migrate or become frustrated.
- Governments respond with policies:

Migration

- **Migration** is a long-term move from one place to another.
- It can be **internal** or **international**, and voluntary or forced.
- *Push factors at the origin, pull factors at the destination, and intervening obstacles between*
- **Push factors** drive people away; **pull factors** attract them; **intervening obstacles** such as cost, distance and borders stop some people.

Sources for this lesson

- **International** Baccalaureate, *Geography guide* (first assessment 2019).
- National Bureau of Statistics of China, *Statistical Communiqué on the 2024 National Economic and Social Development* (January 2025) and the *Seventh National Population Census* (2020).
- United Nations, *World Population Prospects 2024*.

Sources for this lesson (2)

- UNHCR, *Global Trends: Forced Displacement* (annual report).
- Hu Huanyong, "The distribution of population in China" (1935), the source of the Hu Line.

Common errors

- Confusing the birth rate (births per 1,000 people) with the fertility rate (children per woman).
- Forgetting migration: total population change is **natural increase** plus **net migration**.
- Treating the **demographic transition model** as a forecast; it describes the past of today's rich countries and may not fit every country.

Common errors (2)

- Reading a **population pyramid** without saying which ages and which sex the bars show.
- Writing "China's population is falling because of the one-child policy" alone; rising incomes, education, urban living and costs matter too.
- Calling every migrant a **refugee**; a refugee has crossed a border to escape persecution or conflict.

Key terms

- **Population density**: the number of people per square kilometre.
- **Natural increase**: the birth rate minus the death rate.
- **Total fertility rate (TFR)**: the average number of children a woman would have in her lifetime at current rates.

Key terms (2)

- **Replacement level**: the fertility rate (about 2.1) at which a population replaces itself over time.
- **Dependency ratio**: the number of people aged 0–14 and 65 and over for every 100 people aged 15–64.
- **Demographic dividend**: the boost to growth when the share of working-age people is high.
- **Internally displaced person (IDP)**: someone forced to leave home who stays inside their own country.

Check yourself

- 1.
- In 2024 China had 9.54 million births and 10.93 million deaths.
- Calculate the natural change. 2.
- A country has a CBR of 24 and a CDR of 8 per 1,000.