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## *Unit 1: Populations in Transition*

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### **Unit Overview:**

The new IB Geography Core comprises four strands or topics of Geography, namely Populations in transition, Disparities in wealth and development, patterns in environmental quality and sustainability and patterns in resource consumption. Although for convenience these topics are taught individually it should be remembered that IB examination questions have a holistic approach to the core. That is to say individual examination questions tend to test a student's knowledge, understanding and application of concepts from the core material rather than material from one particular topic in isolation. This first Unit investigates the topic of population. Students will learn to observe factors that influence the distribution of people across the globe and from this they will be able to identify broad spatial patterns. Students will learn how to use and apply age-sex pyramid graphs to places on a variety of scales. Accordingly they will learn how fertility, mortality and migration rates can impact on individual populations and how this may influence the decisions made by governments at all levels in society.

Each lesson number represents the order in which the material should be taught, since some of these lessons contain activities such as research and statistical analysis, it is recognized that each lesson may take longer to complete than one standard 50 minute timetabled lesson in a particular institution. As a general guide, 30 hours should be devoted to the teaching of each unit; this would not include assessment time or fieldwork activities.

### **Lesson 1: Presentation on Population Trends and Projections**

**Objectives:**

- To satisfy IB Geography syllabus section 1
- To observe factors which influence the distribution of people
- To observe and account for spatial patterns
- To learn and apply new geographic terms

**Motivation:** The lesson will largely focus on the power Point presentation. However, it is important to engage the audience at the beginning before they get hooked on copying down every word off the slides. An effective way of doing this is to introduce the topic and ask a number of key questions, **as a Starter Activity in the Student Activity book** perhaps centered round a map of the home region or a map of a well known place in the student atlas, e.g. New York.

Examples of key questions to ask are: Why do so many people choose to live in this place? Where do most people tend to settle? Is the distribution of people across the area even or uneven? Can I begin to see a pattern to the distribution? If I can see a pattern, what might be causing it? Ideas can be brainstormed and recorded on the board before the lecture begins. Then proceed with the lecture

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**Homework:** A good start is to read the relevant chapter in the supporting text book and complete Things to activities on slide 1.1.14

**Vocabulary:** The main words are distribution, population density, demography, densely populated, sparsely populated, clustered, linear, nucleated,

**Materials:** Text book, Atlas, Large map of home region to pin up, Power point slide show/ overheads for unit 1.1.

### **Lecture Support Procedure**

**Slide 1:** Begin as if you are recapping what has just been discussed and concluded during the starter activity. Allow students time to copy this formal writing or alternatively produce the slide as a hand out

**Slide 2:** Simple introduction of terms

**Slide 3:** This deals with rate of births and deaths. Some fun calculations can be introduced- for example how many children would they have to take home with them after one lesson?

**Slide 4:** It is a good idea to get students to guess the top 10 countries in advance. Write them on a whiteboard and then see how close they are by revealing this slide.

**Slide 5:** Some simple observations to share with the class on recent trends in population

**Slide 6:** Have students estimate the current level of population from this graph. If you have a connection to the internet you can compare levels of population clocks to this graph.

**Slide 7:** Brainstorm factors that might be leading to population slowing

**Slide 8:** Simple observation of trend.

**Slides 9:**

Ahead of this slide ask students to order the continents by population size

**Slide 10:** Practice using the terms sparsely and densely populated to well know places in the home area. Additionally point out that distribution is often uneven

**Slide 11:** Introduce the concept of the population pyramid and use the labels on the slide to navigate students around the various ways they can be used to deduce population patterns

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**Slides 12 and 13:** Information only.

**Slide 14:** These are simple and easy to achieve activities to set as homework or to continue with during a second session.

**Slide 15:** Some links that will assist with the activities and be useful to students later in the course.

**Wrapping up the lesson:** Conclude by making the point that population distribution is a dynamic thing, constantly changes, and the pattern will significantly change again in the future. (as it has significantly changed in the past) What everyone wants to know is by how much and which areas will be the most effected.

### **Lesson 1.2: Interpreting patterns of population distribution and density**

**Objectives:** to satisfy IB Geography Syllabus section 1  
to observe factors which influence the distribution of people.  
to observe and account for spatial patterns globally and locally  
to learn and apply new geographic terms

**Timing:** Spend two sessions, ensure the lecture material is complete and attempt activity sheet 1.1 then go through and discuss the solutions.

**Motivation:** Begin the lesson by recapping the major points made during day two. Remind students that population distribution is influenced by human and physical features of the environment, availability of resources and decisions often made by those around us. Population distribution is uneven and the pattern is continually changing. Back up these statements with examples from the local area as used in the day 1 starter activity.

Follow this up by asking students to work through the tasks on Activity sheet 1.1 from the student activity book. Allow some lesson time to go through at least some of the questions orally in class.

**Homework:** To ensure all activities complete to date

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**Vocabulary:** The main words are distribution, population density, demography, densely populated, sparsely populated, clustered, linear, nucleated,

**Materials:** Text book, Atlas, Large map of home region, Activity sheet 1.1 in student activity book.

**Lecture Support Procedure:** Task 3 is the most important task on activity sheet 1.1 since it gives students the opportunity to apply the skills learned to a fresh situation. Students should be allocated about half of the lesson time to attempt this and be encouraged to complete for homework if necessary. If you have access to GIS software or Google Maps, the activity can be completed using it.

**Example:** Country Chosen –Australia

The population is largely distributed along the coastlines with the greatest concentration along the East Coast, with smaller pockets in the south and west. The population is sparse in the central areas.

Australia is a dry country and desert makes up most of the interior. However, land quality and water access improves markedly towards the coastal strips. Coastal areas are aesthetically pleasing and good communication networks make the area appealing for industries and jobs. Many of the cities are ports including the principal city Sydney.

Higher level students may even draw a labeled sketch map to illustrate their answer and this should be encouraged.

**Wrapping up the lesson:** It might be a good idea to ask a student to read out his or her answer. This may then assist those who have not yet formulated a full response.

### **Lesson 1.3: Global patterns and trends**

**Objectives:**

- To satisfy IB Geography Syllabus section 1
- To observe the changing nature of population distribution
- To observe and account for spatial patterns globally
- To learn and apply new geographic terms

**Timing:** One session Read the fact sheets and discuss the terms, explain further as required. Ensure that the point of the Lorenz Curve is understood by asking students to think of ways to apply it.

**Motivation:** Begin the lesson by recapping work from Day 2 The starter activity could be to hear a few more student responses to task 3 on activity sheet 1.1

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**Homework:** Re-read the Fact Sheets

**Vocabulary:** As listed on fact sheet 1.1 Population terms

**Materials:** Fact Sheet 1.1 in student activity book, fact sheet 1.2 Lorenz Curves

**Lecture Support Procedure:** Begin with starter activity to hear student feedback from task 3, activity sheet 1.1. Give out fact sheet 1.1 Population-spend some time introducing students to age-sex pyramids (sometimes called population pyramids.) While it is not necessary to elaborate on these – students need to know that these are graphs that compile the proportion of males and females of particular age groups in a population. Allow plenty of lesson time for students to read through and discuss Lorenz Curves Fact Sheet 1.2

**Wrapping up the lesson:** Summarize the use of Lorenz curves –remind them that next session they will be constructing them

### **Lesson 1.4: Using Lorenz Curves**

**Objectives:** To observe and account for spatial patterns globally  
Learn how to apply statistics to a geographic situation.  
To learn how to construct and interpret Lorenz Curves.

**Timing:** One session required to read through fact sheet 1.2 and apply concepts to activity sheet 1.3.

**Motivation:** Begin with the usual recap of last lesson's events. The starter activity should be to complete the oral feedback of answers to any questions

**Homework:** An option for some students to catch up on uncompleted work.

**Vocabulary:** The main words are Even Distribution, Uneven Distribution Greatest Concavity and Lorenz Curve.

**Materials:** Activity sheet 1.3 of student activity book, fact sheet 1.2 Lorenz Curves, internet access is desirable for students.

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### **Lecture Support Procedure:**

Go over fact sheet 1.2 (if necessary) on Lorenz curves and read through in class together.

Use the 1950 population values and example given in the fact sheet to prepare students for the tasks in Activity sheet 1.3.

Allow plenty of lesson time for students to research population statistics required for activity sheet 1.3. Alternatively, you could supply this information to speed things up or if internet access is unavailable

Students will require some time to complete activity sheet 1.3 and write up their findings. Students skilled in ICT will be able to construct their Lorenz curve in EXCEL or similar.

Remember that if you supply students with all the data, it is advisable to give students some opportunity later to conduct research for themselves. Self-directed research is very much a skill required of the IB Geography student.

**Wrapping up the lesson:** Allow time for questions about answering tasks on activity sheet 1.3

### **Lesson 1.5: Presentation 1.2 Population Structures**

**Objectives:** Satisfy section 1 of IB Geography syllabus  
To investigate the measurable characteristics of demography  
To gain confidence in interpreting age/sex pyramids  
To investigate how population structures change with time.

**Timing:** Three sessions are recommended for this material. Presentation 1.2 should be used to lecture with PowerPoint as detailed below. Students will need access to computers to complete the Things to do section of the PowerPoint.

**Motivation:** Governments need to provide services to the public. How do they know what is needed by society? How do they know how much of something is needed? Moreover how do they know when to supply it? The answer to these questions is that most governments of the world conduct a national census and from this gain a snapshot of population structure. This lesson will assist students in recognizing certain structural traits to populations and they will be able to draw conclusions, make recommendations in response to some demographically challenging situations.

**Vocabulary:** Population pyramid, age/sex pyramid, expansive structures, stationary structures, contractive structures, concave, convex

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**Materials:** PowerPoint presentation/overheads 1.2 Computer access if possible. The internet site is: <http://www.census.gov/ipc/www/idb/informationGateway.php>

### **Lecture Support Procedure**

Introduce the topic and begin by asking some of the questions as listed under 'motivation' above. Begin the power point presentation.

**Slide 1:** Introduces the topic

**Slides 2-3:** The example is used to illustrate the importance of demographic data when trying to predict a society's future needs. You could talk about the census here. Tell the students how often the census is undertaken in your country and explain the reasons why a census ideally needs to be carried out every 5-10 years. Look at the pyramid and discuss with students how each of the factors listed can be deduced from pyramids

**Slides 4-8:** This indicates how pyramids change shape with time and the more formal names for the different shapes. Students to note down and learn.

**Slides 9-10:** These slides show the four main types of pyramid shapes matched against the concept of the Demographic Transition Model. Take time to really explain how this works. Each vertical line on the graph separates a trend that nations tend to follow as they develop economically. Students can play games at guessing or working out which countries are at the various stages of demographic transition. Emphasize that the boundaries of each stage are dependent on changes in the birth and death rate and total population curves. Also link this to the title of the IB unit as it shows further evidence that populations are dynamic.

**Slides 11-12:** Information only

**Slides 13-14:** Introduces the concept of dependency ratios using the pyramid and a formula.

**Wrapping up the lesson:** Recap the use of pyramids as government tools for societal needs link them to the demographic model and dependency calculations