Scheme of work: Population and the environment

Introduction

This scheme of work offers a route through the A-level Geography (7037) specification with a core focus on Human Geography, optional topic population and the environment specification.

It covers the specification in the order listed, but you may choose to sequence it differently. It suggests possible teaching and learning activities for each section of the specification.

The specification content is shown at the start of each section, some suggested activities will target multiple specification points. The learning outcomes indicate what most students should be able to achieve after the work is completed.

Timings have been suggested but are approximate. Teachers should select activities appropriate to their students and the curriculum time available.

The order is by no means prescriptive and there are many alternative ways in which the content could be organised.

The resources indicate those resources commonly available to schools, and other references that may be helpful. Resources are only given in brief and risk assessments should be carried out.

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Contents

You can use the title links to jump directly to the different sections of this scheme of work. (Use Ctrl and click to follow the link.)

3.2 Human geography

Core topic: 3.2.4 Population and The Environment

Population and the environment

Specification content

3.2.4.1 Introduction
The environmental context for human population characteristics and change. Key elements in the physical environment: climate, soils, resource distributions including water supply. Key population parameters: distribution, density, numbers, change. Key role of development processes. Global patterns of population numbers, densities and change rates.

Learning outcomes
This lesson will help students to understand:
- What is 'population distribution' and 'population density'.
- How population distributions are often inextricably linked to physical geographical elements.
- Examples of where distributions have been affected by physical geographical elements.
- How physical elements play a pivotal role in the development processes.
- What historical data shows about the history of global population growth.
- Which regions of the world are driving population growth now and in the future.

Suggested timing
2 hours

Possible teaching and learning activities
- Discuss with students how important population growth is with regards to driving many of the environmental, socio-economic and political challenges that we face today. You may wish to start with a numbers game where students are given various statistics and have to guess what they might relate to within the context of population or use a population counter (Worldometer) to promote discussion.
- Revisit the term 'population distribution' with students. Explain how an understanding of the relationship between population and the physical environment is key to understanding population distributions. Another important key term to revisit at this time is population density and how this is measured.
- Ask students to consider what the various elements in the physical environment might be that potentially affect population distributions. Why do they think this is the case?
- Give students some information about the elements in the physical environment that affect population distribution. These are: climate, geology/soils, water supply,

ecosystems/vegetation, topography/altitude. Ask students to detail, on a spider diagram, how each of these factors affect population. Students should also try to include an example of where this is determined to be the case. For example, linear population distributions along key rivers (water supply) as seen in the case of the River Nile or the Tigris and Euphrates rivers.

- Provide students with an up to date map of the world showing population densities (Our World in data). Ask students to use Google Earth or an atlas to annotate the map with explanations of the physical elements that have caused particular population distributions. These can be either regions of density (South-East Asia) or sparsity (The Sahel). Students can choose the areas they wish to look into or you could issue a list of particular regions you would like students to investigate. National Geographic population density provides a useful map with different layers that may be transposed upon the distribution data.

- Look into a particular country or region that has had its development significantly affected by the geographical physical elements of the area. For instance, Egypt, where the Nile Valley has an average population density of over 2000+ people/Km^2 whereas the country as a whole has a population density of just 103 people/Km^2. The access to fertile soils and plentiful water allowed Ancient Egypt to focus on other aspects of development rather than simply the production of food or defence. This included architecture, forms of government, economic inventions (early forms of accounting and taxation) and art. Other examples might include the Neolithic Agrarian Revolution in Mesopotamia or the Industrial Revolution in Britain.

- Look at the population graph produced by Our World in Data. What does it reveal about the history of global population growth? Alternatively, you could provide students with the population data since 1800 to complete a line graph themselves. What do students attribute to the remarkable acceleration in growth of the last 200+ years to? Discuss what is meant by the term 'exponential growth'.

- Look at this more detailed graph showing population growth by world region. Ask students to describe what the graph shows. What do they think are the reasons behind the population growth and projected growth of these regions? Discuss the potential reasons behind this population growth. Explain that population growth may be driven by different factors in some regions. For instance, in some regions this could be cultural such as under-utilised contraception, in others this could be rapid falling mortality rates.

- What do students think the term 'carrying capacity' means? Does the projected population growth of the planet mean that we will exceed our global carrying capacity? Discuss why poverty and hunger is still an issue when, globally, we produce enough food to feed approximately 12 billion people.

Patterns of food production and consumption and agricultural systems

Specification content

3.2.4.2 Environment and population
Global and regional patterns of food production and consumption. Agricultural systems and agricultural productivity. Relationship with key physical environmental variables – climate and soils.

Learning outcomes
This lesson will help students to understand:
- What 'agricultural productivity' is.
- How calories produced and consumed are useful proxies for agricultural productivity and malnourishment.
- The global patterns of production and consumption are and reasons for these.
- How farms can be studied using a systems approach.
- What 'agricultural productivity' is and how it can be measured using 'total factor productivity' (TFP).

Suggested timing
2 to 3 hours

Possible teaching and learning activities
- Start with a matchup activity involving some of the key terms for the lesson and the unit moving forward. Can they match the words to the definitions? These are: agricultural productivity, food security, zonal soil, food security, environmental capacity and human capacity.
- Discuss how calories per person can be used as a useful proxy measurement for poverty and wealth. In 1960 the average global food supplies for humans stood at only 2,300 calories per person per day. What do students think the average is today? Why do students think that despite the increase to approximately 2,940 calories per person per day does poverty and under-nutrition occur?
- Ask students to make notes on the reasons behind the gains in production. These are the 'green revolution', improvements in irrigation, pesticides and fertiliser use, an increase in globalised trade, and investment in low-income countries by TNC's that have helped to increase productivity.
- Give students a copy of this [map showing per capita kilocalorie supply from all foods](#) per day in 2021 (Our World in Data). Ask students to describe the trend. Further to this, can students explain why this is the global pattern of agricultural food production (both crops and livestock)? Students may refer to climate, soil fertility, advances in mechanisation, intensive and extensive farming, scientific advances etc.
- Then consider the pattern of consumption. Discuss with students what is meant by the terms 'malnourished' 'obese' and 'under-nourished'. Provide students with a copy of the

map showing the share of the population that is undernourished in 2021 (Our World in Data). Ask students to describe the pattern of undernourishment. Then students should try to explain this pattern.

- To finish the lesson, you could ask students to complete this multiple choice quiz by the Gapminder Foundation on global hunger. The quiz is designed to address common misconceptions regarding consumption and production, explore why students may have had misconceptions about these issues.
- Discuss how agriculture can be studied in a systematic way by considering farms as open systems that have inputs, processes and outputs. Give students a blank sheet of paper and ask them to sketch a diagram that displays the farming system with the inputs, processes and outputs identified.
- Explain to students that there are different types of inputs onto a farm. These include physical, cultural, economic as well as input from the farmer. There are also different processes on the farm as well as different sorts of outputs. Ask students to complete an annotated diagram of the farming system detailing the different types of inputs, processes and outputs might be. For example, physical inputs might be precipitation, ands temperature whereas cultural inputs might be land ownership or gender issues.
- As students to consider losses from the farming system. Can they add some potential losses onto their diagram? Students might focus on economic losses such as capital, but there may be less tangible losses such as the decline of soil fertility over time.
- Explain to students that there are different types of farming, and they can be categorised into the following types: commercial, subsistence, intensive, extensive, pastoral and arable. These may not be mutually exclusive, for instance arable farming can also be extensive and commercial in nature. Give students some descriptions of various types of farms. Can they determine which category fits the description?
- Explain to students what is meant by 'agricultural productivity' and how this can be measured using 'total factor productivity' or TFP. TFP is the ratio of agricultural outputs to inputs so as outputs increase relative to inputs total productivity increases. Ask students to create two columns in their notes. One column for arable farming, and one for pastoral farming. Ask students to populate these columns with ideas as to how total factor productivity can be improved for both types of farming.
- Explore global agricultural output between regions (Our World in Data). What is the overall change in agricultural output? What changes have occurred in output between the different regions? What do students think are the key factors that can be attributed to this change? Students may put forward ideas regarding improved technology and mechanisation in less-developed regions, and the expansion of land that is being used for agriculture (extensification).

Resources

Read the article: Total Factor Productivity of the United Kingdom agricultural industry in 2023 (UK Government website).

Climate and agriculture

Specification content

3.2.4.2 Environment and population
Characteristics and distribution of two major climatic types to exemplify relationships between climate and human activities and numbers.

Learning outcomes
This lesson will help students to understand:
- What the 'limiting factors' in farming are and how they affect how farming is undertaken.
- How the McCarty and Lindberg's Optima and Limits model can help visualise how limiting factors affect agricultural productivity.
- How two major climatic zones and their characteristics affect what human activities are undertaken there.

Suggested timing
2 hours

Possible teaching and learning activities
- Discuss with students how farmers will reach decisions on how to use their land based on several variables. These include, their own knowledge and skills, cultural factors (e.g. local diets), economic variables and physical factors.
- Climate and soils are known as 'limiting factors' in agricultural production. Explain to students how McCarty and Lindberg's Optima and Limits model provides a useful visual representation of the limiting factors. Ask students to annotate the model with an explanation of what happens when a farm moves away from optimum conditions and what is done by the farmer in response to the limiting factors. For example, as soil fertility decreases the farmer may respond by adding more fertiliser to the soil, increasing the costs of production.
- Provide students with a map of the world's major climatic zones and a map showing global population densities. What do students notice about the two maps? How do they think agriculture might be related to climate and population distribution?
- Inform students that they need to study the characteristics and distribution of two major climatic types and the relationship between climate and human activities and populations. For instance, the polar climate and the tropical monsoon climate. This could be set as a research task, or you may wish to provide some information to assist students. For each climatic type students should make notes on:
  - The distribution of the climatic type.
  - Its characteristics (temp, precipitation, physical geography, population distributions).
  - The relationship to human activities (what type of farming is undertaken and why? What sort of adaptations have been made to improve productivity in that particular climate?).

- As an extension students could consider any similarities and differences between the two climatic zones. For instance, a lack of water for irrigation may be as much of a problem in some polar areas as it is in semi-arid environments.

Resources

- Watch the video: [Farming In The Arctic | Growing Vegetables In Freezing Temperatures](#) (8 minutes).
- Watch the video: [How To Garden In The Arctic | Mach | NBC News](#) (6 minutes).
- Watch the video: [Peru: Sustainable farming in the rainforest | Global Ideas](#) (6 minutes).

Climate change and agriculture

Specification content

3.2.4.2 Environment and population

Climate change as it affects agriculture.

Learning outcomes

This lesson will help students to understand:

- What the likely impacts of climate change on agriculture are likely to be.
- What some of the potential solutions are to the problems posed by climate change.
- What 'Climate Smart Agriculture' is and what are the potential concerns?

Suggested timing

1 to 2 hours

Possible teaching and learning activities

- Discuss the meaning of 'food security'. Ask students to create a mind map on the impacts of climate change. Firstly, ask students to note down what they consider the major impacts of climate change. Once students have done this ask them to explain what they think the impacts on agriculture in these areas will be.
- Explain to students that agriculture is predicted to be the most vulnerable economic sector to the effects of climate change. Why do students think this is the case? Provide students with a blank map of the world and a list of the expected effects on agriculture. Ask students to annotate the map by locating where the impact is and the details of the effects. Some of these impacts may not all be seen as negative, for instance longer growing seasons in some locations may allow for increased productivity per year.
- Ask students to consider what the potential solutions to a changing climate might be for agriculture. Watch the 7 minute video [Can we create the "perfect" farm?](#) (Brent Loken), ask students to note down some of the solutions discussed in the video that are part of the 'second agricultural revolution'.
- Explain what the term 'Climate Smart Agriculture' (CSA) means. Give students a copy of the diagram in the [guide that visualises climate smart agriculture](#) (CSA Guide) and the information within the guide to help. Use the 3 minute video [Climate-Smart Agriculture in Action](#) (YouTube) to supplement the learning. Ask students to elaborate on the social, economic and environmental aspects of CSA.
- Discuss the Global Alliance for Climate Smart Agriculture (GACSA). Ask students what the term, 'greenwashing' might be. Ask students to [read the article on climate smart agriculture](#) (Ecologist). What are the main concerns about CSA? What are students' own views, does commercial farming by its very nature offer little or no viable solutions to climate crisis?

Soil, soil problems and management

Specification content

3.2.4.2 Environment and population
Characteristics and distribution of two key zonal soils to exemplify relationship between soils and human activities especially agriculture.
Soil problems and their management as they relate to agriculture: soil erosion, waterlogging, salinisation, structural deterioration.

Learning outcomes
This lesson will help students to understand:
- The function of soil and what a soil profile is and how horizons are formed.
- The distribution of zonal soils and how they are linked to climate, geology and geography and these in turn impact the nature of human activities carried out upon them.
- How soil erosion happens and what the impacts can be.
- How salinisation happens and how it can affect the soil and vegetation.
- What is meant by 'waterlogging' and how this happens.
- How the structure of the soil can deteriorate and what the impacts can be.
- What the potential solutions to the most significant soil problems are and how they can be managed.

Suggested timing
3 hours

Possible teaching and learning activities
- Discuss with students' what soil is, what its structure and properties typically are. Some key terms to cover with students at this point are peds, pore spaces, pedosphere, horizons and zonal soils.
- Get students to create an annotated diagram of a typical soil profile incorporating all the horizons from the leaf litter (L horizon) to the parent material or regolith (C horizon). Explain in more detail how zonal soils form and how the processes of additions, losses, transfers and transformations of energy and matter change the nature of the soil.
- Explain to students that understanding the type of soil on a farm is crucial to maximising productivity. Consider the soil triangle. Explain with students the three components of soil (sand, clay and silt). Give students various combinations of percentages of the components of different soils. Can students use the triangle to work out the type of soil?
- Ask students to complete a diagram showing the five functions of soil. Ask students to watch the 5 minute video Let's Talk About Soil (YouTube) and annotate the diagram with further details on the role of soil in each of these functions.
- Give students a simplified map of the world's zonal soils. Ask them to describe the map, and as an extension can they explain any trends or anomalies that they see.
- Ask students to research two major zonal soils or provide students with information on two zonal soils. Request that students draw a typical profile for each soil whilst noting down some of the key physical characteristics of the soil with annotations linking the soil

to the climate, geography and/or geology of the areas. Students should then detail how the characteristics of that zonal soil has impacted agriculture and agricultural practices in these areas. Ask students to include real-world examples such as shifting cultivation of the Kayapo tribe on the latosols in the Amazon Basin or extensive cereal farming in the steppes of Ukraine.

- Show students the slideshow of photographs taken of the Dust Bowl in North America (PBS) in the 1930's. What do students think the problem is and what might have caused it?
- Ask students to brainstorm all the problems that they know can occur with soil and why these occur. Which of these problems are caused by humans and which are natural?
- Define erosion and discuss how erosion of topsoil can occur. The main agents of soil erosion are water and wind. Provide students with some information on the different types of water erosion (rill, sheet, gully and riverbank erosion) and wind erosion (saltation, creep, suspension, abrasion and attrition erosion). Ask that students create a diagram summarising each type of erosion and how it happens.
- Show students a selection of images of the various types of erosion. Can students identify what type of soil erosion they are looking at?
- Ask students to create two columns in their notes, one entitled 'causes of soil erosion' and the other 'solutions to soil erosion'. Watch the 3 minute video 'Soil Erosion Round the World - Causes and Solutions' (YouTube) on the causes of and solutions to soil erosion, students can then populate each column according to the information in the video.
- Discuss the waterlogging of soils and the causes. Explain how this can lead to anaerobic conditions. Ask students to create a diagram that shows how waterlogging can be either surface-fed or groundwater-fed waterlogging. Ask students to annotate the diagram with explanations of these causes as well as the potential impacts on the soil and plants.
- Discuss what salinisation of soil is and how this can be caused by excessive irrigation and the clearing of trees and dense vegetation. Excessive salt is toxic for planta sand affects their uptake of essential ions. Ask students to make notes on the causes and effects of salinisation together with information on an example such as China's Northern Plain, Central Asia and the San Joaquin Valley of California.
- Explain to students what is meant by 'structural deterioration' of soil. Outline the circumstances where this may happen. Give students some descriptions of the soil structures. Ask students to draw diagrams of the structures based on the descriptions and annotate them according to the conditions in which that structure develops.

Resources
- Watch the video: Why soil is one of the most amazing things on Earth | BBC Ideas (4:40 minutes).
- Read the article: Soil Association website.
- Watch the video: 'Soil Salinity Impacts and Management' (1 minute).
- Watch the video: 'Salt-affected soils: discovering a missed reality' (4 minutes).
- Watch the video: 'Soil Structure - Ask Ian Video Series' (6 minutes).

Food security strategies

Specification content

3.2.4.2 Environment and population
Strategies to ensure food security.

Learning outcomes
This lesson will help students to understand:
- What is meant by 'food security'.
- Issues surrounding food security.
- Strategies for improving food security.

Suggested timing
1 to 2 hours

Possible teaching and learning activities
- Ask students what they think food security means. Use the 2 minute video introduction to Food Security and ask students to make notes on what food security is and why it is important for nations to have food security.
- State the four 'elements' of food security to students (availability, access, use and stability). What do they think these mean in the context of food security? Request that they construct a diagram that shows these elements.
- Ask students to make notes on the three main issues surrounding food security. These are production, distribution and demand. Request students outline the issue and also give an example where possible, for instance the problem of over-consumption and excessive waste in developed countries. You could ask students to analyse the data provided in this website as evidence for over-consumption.
- Discuss with students some issues around food security. Ask students to consider the severity of the issues as well as suggest some possible solutions. Issues for discussion could be the distribution of adequate food supplies (considering that there is enough food production to feed everyone on the planet adequately). Alternatively, you could discuss the importance or redundancy of national food security due to the increased global nature of world trade.
  - Ask students to make an infographic/poster/presentation on each of the two strategies for improving food security: increasing food production and reducing post-production losses.
- Either provide some information for students to use or ask them to complete their own research. For each strategy students must include an explanation of the strategy, the challenges of the strategy, how successful the strategy is/could be.

Resources

- Watch the video: [Inside Story - How can food security in Africa be achieved?](#) (World Resources Institute) (25 minutes).
- Watch the video: [Food security: a growing dilemma](#) (YouTube) (28 minutes).
- Read the article: [People are eating more protein than they need](#) (World Resources Institute).

Global patterns of health, mortality and morbidity

Specification content

3.2.4.3 Environment, health and well-being
Global patterns of health, mortality and morbidity. Economic and social development and the epidemiological transition.

Learning outcomes
This lesson will help students to understand:
- What morbidity and mortality are.
- What the factors are that can affect health.
- How health is measured.
- What the global distribution of health is.

Suggested timing
1 hour

Possible teaching and learning activities
- Introduce students to some of the key terminology of the lesson such as health, morbidity, mortality and non-communicable diseases.
- Ask students to consider what geographical factors affect health. Can students categorise them into social, economic and environmental factors? Introduce students to the Dalgren and Whitehead (1991) determinants of health model. As an extension you could ask students to annotate the model with explanations as to how these factors can affect health.
- Ask students to consider the global distribution of health. Do they consider that health is likely to be evenly distributed across the globe? Why do they think that health is unevenly spread? You could ask students to look at the data on the interactive map (Our World in Data) and request some factors to explain the current global pattern of life expectancy.
- Explain to students that several indicators are often used by organisations to measure health. The World Health Organization (WHO) uses two indicators: HALE = the average number of years that an individual lives in full health and DALYS = A measure of morbidity in society – the number of healthy years lost by being in poor health or a state of disability. Provide students with a map of the global pattern of HALE and ask them to describe the distribution. Can they explain any trends or anomalies they identify in the distribution?
- Get students to make a list of what they think are the top ten causes of death globally. Ask them to explain their choices. Look at the causes of death data 2019 (Our World in Data), and the life expectancy data from the WHO website. In 2019 non-communicable diseases accounted for almost 70 percent of all global deaths. What has changed since the pandemic?

Epidemiological transition and environmental variables of disease

Specification content

3.2.4.3 Environment, health and well-being
Global patterns of health, mortality and morbidity. Economic and social development and the epidemiological transition.

Learning outcomes
This lesson will help students to understand:
- What epidemiological transition is and the stages to the epidemiological transition.
- What evidence there is for an epidemiological transition.
- What the environmental factors that affect the incidence of disease and why.

Suggested timing
2 hours

Possible teaching and learning activities
- Remind students of the differences between communicable and non-communicable diseases, discuss some statistics around diseases globally (there are over 7000 known diseases, 1 in 17 people contract a 'rare' disease). What do students think happens to communicable and non-communicable diseases as a country becomes more developed?
- Explain the ideas of the epidemiological transition proposed by Abel Omran (1971). Give students a copy of the line graph outlining the epidemiological transition and ask them to discuss then explain what they believe it is showing.
- Discuss the three stages to the transition identified by Omran and the additional fourth stage added in the 1980s by Olshansky and Ault. Give students some information about each stage, ask them to annotate a large version of the transition line graph.
- Ask students to consider what evidence there is to suggest the transition is accurate. You can give students some historical mortality data for a particular country and compare these to recent figures. What do students think are the reasons for the transition? Ask students to consider the possibility of a fifth stage on 'Age of Health Living'.
- Ask students to create a mind map on the environmental variables and their links to the incidence of disease. The main factors are climate, air quality, water quality and topography and drainage. Provide students with some information on each of these factors. Make sure students make note of real-world examples and statistics on their mind maps, for example an estimated 260 million people are sufferers of schistosomiasis, or that UK air pollution is linked to 43,000 deaths each year.
- As an extension you may wish to take the opportunity to provide the students with some data such as the global incidence of seasonal affective disorder and ask them to describe and explain or analyse the data.

Resources

- Watch the video: 'How the environment affects our health' (YouTube) (2 minutes).
- Watch the video: 'Air Pollution' (YouTube) (1 minute).
- Read the article: Environment, Climate Change and Health (WHO).

The prevalence and distribution of malaria

Specification content

3.2.4.3 Environment, health and well-being
The global prevalence, distribution, seasonal incidence of one specified biologically transmitted disease, e.g. malaria; its links to physical and socio-economic environments including impacts of environmental variables on transmission vectors. Impact on health and well-being. Management and mitigation strategies.

Learning outcomes
This lesson will help students to understand:
- What malaria is, the symptoms and transmission.
- The global distribution and prevalence of malaria and the reasons for this.
- The mitigation and management strategies are.

Suggested timing
1 to 2 hours

Possible teaching and learning activities
- Discuss with students what a vector-borne disease is and some of the facts and statistics surrounding malaria, such as in 2021 there were an estimated 247 million cases of malaria worldwide.
- Use the map (World mapper) which shows the distribution of malaria deaths in 2016. Ask students to describe the pattern. What do students think is a potential reason for the trend they have observed?
- Ask students to make notes on the symptoms of malaria. This could be done by giving students an outline of a body and asking them to annotate around the body identifying the area of the body affected by that particular symptom.
- Give students a list of the conditions needed for malaria to spread or that exacerbate the problem. Request that students sort these into physical or socio-economic reasons.
- Ask students to create a choropleth map using data (World mapper) or another source that shows the distribution of malaria in Africa. Why do students think this is the case? You could compare this data with rainfall data to determine if climate and environmental conditions is a significant factor in the distribution of the disease, but you might wish to contract this with other region so the world with similar climates that have much lower rates of transmission.
- Provide students with details of the impacts of malaria. Ask students to categorise them into social, economic and political effects. Which of these effects do they consider to be the most significant? Can they think of any potential solutions?
- Discuss with students the differences between eliminating and eradicating malaria. Consider why malaria hasn't been eradicated yet. Provide students with some mitigation and management strategies such as vector control, anti-malarial drugs, vaccines etc. Ask students to make notes on how these strategies work to reduce transmission and improve

treatment. As an extension, students could consider which of these strategies they deem to be the most effective?

- Ask students to consider the Malaria deaths in the world graph (Our World In Data). Describe what it shows. What is the overall trend and can they explain this? Why do they think the malaria fatalities have risen in recent years? What do they think needs to happen before malaria is completely eradicated?

Resources

Watch the 2 minute video 'How to Eradicate Malaria' (YouTube).

Non-communicable disease (asthma)

Specification content

3.2.4.3 Environment, health and well-being

The global prevalence and distribution of one specified non-communicable disease, e.g. a specific type of cancer, coronary heart disease, asthma; its links to physical and socio-economic environment including impacts of lifestyles. Impact on health and well-being. Management and mitigation strategies.

Learning outcomes

This lesson will help students to understand:

- What asthma is, how it affects the body and what the causes and triggers are.
- What the global prevalence of asthma is and why.
- What are the potential actions that may be taken by individuals and organisations to reduce rates of asthma.

Suggested timing

1 hour

Possible teaching and learning activities

- Discuss with students what a non-communicable disease is. What types of non-communicable diseases do students know of? The risk of developing an NCD can be a combination of genetics and environmental factors. Can students list some environmental factors that might increase the prevalence of NCD's?
- Provide students with an overview of what Asthma is and how it affects the body. Ask students to make notes on the symptoms and the causes of asthma. You may wish to use the 5 minute video ‘How does Asthma work?’ (YouTube) to supplement the learning. Discuss some statistics regarding asthma such as around 1 in 12 people in the UK have asthma, that is over 5 million people and globally, according to the WHO, asthma affected an estimated 262 million people in 2019 and caused 455 000 deaths.
- Ask students to look at the map showing the global prevalence of asthma in 2021 (Our World in Data). Tell students to analyse the data shown in the map. Can they explain the distribution of cases? You may wish to also discuss any differences noted between 1990 and 2021. Students may refer to improved air quality, better health and safety surrounding chemicals, a ban on smoking in public spaces. Some students may refer to complications with the data in that many people in less developed countries may go undiagnosed, resulting in an under-representation of the true statistics.
- Discuss with students the prevalence of asthma in the UK. You may wish to look at the distribution of reported sufferers who are registered with a GP. This data is available here. Discuss with students the significance of the death of Ella Kissi-Debrah, who had severe asthma and the subsequent ruling by the coroner.
- Ask students to create a diagram that details how the number of asthma cases may be reduced. You could break these actions down into the actions of the individual and actions of organisations. Individual actions can include the use of masks on days with poor air

quality or air purifiers in the household, whereas organisations such as local, regional or national government can introduce legislation or laws to improve air quality such as the smoking ban, or ultra-low emission zones (ULEZ). For each of these actions students must include details on how these actions will reduce rates of asthma.

Resources

- Read the article: 'The 2nd Atlas of variation in risk factors and healthcare for respiratory disease in England' (NHS England).
- Read the article: 'Air pollution a cause in girl's death, coroner rules' (The Guardian).

The role of international agencies and Non-Governmental Organisations (NGO)

Specification content

3.2.4.3 Environment, health and well-being
Role of international agencies and NGOs in promoting health and combating disease at the global scale.

Learning outcomes
This lesson will help students to understand:
- What international agencies and non-governmental organisations are.
- The work and successes of the WHO together with challenges facing the organisation.
- The nature, advantages and disadvantages of NGOs.

Suggested timing
1 to 2 hours

Possible teaching and learning activities
- Discuss with students what international agencies and non-governmental organisations are. Can students think of any examples for each?
- Explain to students what multilateral and bilateral agencies are and how they function.
- Provide students with some information on the World Health Organisation (WHO). Watch the 2 minute video 'WHO: Guardian of Health' (YouTube), ask students to describe the background and purpose of the WHO.
- Ask students to read the article 'What has the World Health Organisation done for us?' (Nature microbiology). Ask students to highlight and make notes on major challenges facing the WHO and its successes. What do students think the most notable success of and challenge to the WHO are and why?
- Provide students with descriptions of the activities of other significant international organisations and NGOs. Ask students to match up the description to the organisation.
- Discuss with students the nature of NGOs and the attributes that increase their effectiveness. These attributes are: Their ability to reach areas of severe need, their promotion of local involvement and their relatively low cost of operations
- Their adaptiveness and innovation, independence and sustainability.
- Watch this 1 minute video on the work of Médecins Sans Frontières (YouTube), and ask students to look at their website: What work does Médecins Sans Frontières do? Create an infographic advertising the work of the organisation including some examples of where the organisation has provided crucial help to serious medical emergencies.
- Ask students what they think the advantages and disadvantages of NGOs are. Provide students with a list. Get students to consider ordering these into more or less significant attributes of NGOs.

Population change, models and structure

Specification content

3.2.4.4 Population change
Factors in natural population change: the demographic transition model, key vital rates, age–sex composition; cultural controls. Models of natural population change, and their application in contrasting physical and human settings. Concept of the Demographic Dividend.

Learning outcomes
This lesson will help students to understand:
- Demographic indicators.
- Factors involved in population change.
- The Demographic Transition Model
- How population pyramids show population structure, and insights into the demographic transition.
- 'Demographic dividend' and how this can lead to a period of economic growth.

Suggested timing
3 to 4 hours

Possible teaching and learning activities
- Discuss some key measures such as crude birth and death rates as well as other important terminology such as natural increase, natural decrease, immigrants and emigrants.
- Ask students to copy the systems diagram showing the two components of population change After Waugh, D., *Geography: An Integrated Approach*.
- Discuss 'key vital rates' with students and explain what total fertility rate, replacement level and infant mortality rate are. Watch the 5 minute video discussing total fertility rates and replacement level (BBC) and ask students to look at the data provided by the World Bank and Our World In Data. What is the global trend in fertility and what is the spatial pattern regarding total fertility and replacement levels? Can students think of reasons for this?
- Ask students to create a diagram with headings: social factors, economic factors and political factors. Students should think about cultural controls as well socio-economic and political factors that have contributed to changing fertility rates across the world and may comment on political stability/instability, economic opportunities and religion as factors.
- Give students information on real-world examples of how fertility rates have been affected by various factors such as the China's One Child Policy, improvements in primary health care in Bangladesh and the doctrine of certain faiths such as Roman Catholicism and Islam. Students add these to their diagram under the appropriate headings.
- Explain how the demographic transition model (DTM) was devised by the American demographer Warren Thompson in 1929 and provides a structure which is representative of the characteristics, processes and relationships that occur.
- Work your way through the five stages of the DTM with students. Ask students to provide commentary on what is happening to the birth and death rates as well as total population.
- Provide students with a large A3 DTM. Give students a series of statements that they need to place on the model to create a 'living graph'. These statements could include either

straightforward statements regarding the two rates or total population or a real-world or fictional example for students to place in a particular stage.

- Give students a copy of the demographic transition of the UK (Cool Geography). Ask students to annotate this model to analyse how well the country fits the demographic transition.
- As an extension read the article 'Demographic transition: Why is rapid population growth a temporary phenomenon?' (Our World in Data). Discuss with students the various DTM's provided by the website and why there are variations between countries regarding their demographic transitions.
- Ask students to critically evaluate the DTM. What are its strengths and weaknesses? Students may refer to its usefulness in providing a framework for comparing transitions and spotting similarities and differences between countries. They may suggest weaknesses regarding the lack of timescale; some countries do not progress smoothly through the model, not including the effects of migration and its Eurocentric bias.
- Examine several population pyramids and discuss how the shape and structure of the pyramid can indicate at what stage of demographic transition the country is moving through. Provide students with a selection of pyramid shapes, can the work out which country's population structure the pyramid represents and at what stage it is in.
- Discuss with students what is meant by the categories 'young dependent', 'economically active' and 'elderly dependent'. Which age brackets would students place in each category? Explain what 'dependency ratio' is, how it is calculated and provides a useful measurement on dependency in a country. Provide students with data to conduct their own calculations.
- Discuss with students what some of the benefits and drawbacks of both youthful and ageing populations might be. Example countries might be Niger (youthful population) and Japan (ageing population). Watch the 5 minute video 'The Population Pyramid' (YouTube) to help explain how population pyramids evolve over time and help demographers predict what future population structures might be like.
- Explain the concept of the 'demographic dividend'. The 3 minute video 'Demographic Dividend explained' (YouTube) might provide a useful supplement to the learning. Explain how the demographic dividend can give rise to a period of higher economic productivity and what actions countries can undertake to take further advantage of this dividend.
- Provide students with some demographic data of an individual country which includes population pyramids from different time periods in the country's recent history and some indicator statistics that might show the demographic dividend in that country such as GDP or economic growth rates. Ask students to annotate the information to determine if the demographic dividend is apparent and how they know this.

Resources

Watch the 3 minute video Japan 'on the brink' over falling birth rate says PM (BBC News).

International migration

Specification content

3.2.4.4 Population change

International migration: refugees, asylum seekers and economic migrants: environmental and socio-economic causes, processes. Demographic, environmental, social, economic, health and political implications of migration.

Learning outcomes

This lesson will help students to understand:
- The terms international migration, asylum seeker, refugees and economic migrant.
- Migration a combination of push and pull factors.
- International migration can have notable positive and negative implications of countries of origin and destination.

Suggested timing

2 hours

Possible teaching and learning activities

- Explain the meaning in of international migration. Provide students with some facts from the UN International Migration Report and discuss why forced migration is rising or one third of all international migrants originated in just ten countries. Why does most migration occur in the direction from less developed to high-income countries? You could ask students to explore the story 'Modern Human Migration' on Google Earth which document some of the most significant modern migration movements.
- Define some important terms such as asylum seekers, refugees and economic migrants. You may wish to use some of the videos in the resources section to supplement the learning.
- Remind students that the reasons people migrate can be categorised into 'pull' and 'push' factors. Push factors can be more associated with 'forcing factors' and the socio-economic conditions in the place of origin, whereas pull factors may be more associated with voluntary migration but it is likely to be a combination of reasons. Ask students to create a diagram that divides the factors into push and pull factors but also further categorises them into 'forcing' and socio-economic factors.
- You may wish to look at some individual stories of migrants to help students understand the variety of reasons for the decision to migrate. The People's History Museum has several examples on their YouTube site. Whilst the statistics surrounding migration are vast, each number is an individual story.
- Explain Lee's push-pull model of migration and ask students to create a version for their notes. Students can annotate the model with examples such as border controls, language barriers, costs etc as intervening obstacles.
- Explain to students that international migration impacts the population structure of a country immediately. Ask students to consider the population structure of the United Arab Emirates (PopulationPyramid.net). What do they notice about the structure? What might have caused this gender imbalance. What might the implications for the UAE be?
- Ask students to create a mind map that shows the implications of migration for the origin and destination countries. Students should break the implications down into demographic, social, economic, political, environmental and health implications, for both the country of origin and destination. These could be further categorised into both

advantages and disadvantages. There are some helpful videos in the resources section regarding the implications for both countries of origin and destination.

Resources

- Watch the 2 minute video: 'Who is a Migrant?' (YouTube).
- Watch the 3 minute video: 'Who is an Asylum Seeker?' (YouTube).
- Watch the 9 minute video: 'Effects of Migration in Countries of Destination' (YouTube).
- Watch the 9 minute video: 'Effects of Migration in Migrant Countries of Origin' (YouTube).

Principles of population ecology

Specification content

3.2.4.5 Principles of population ecology and their application to human populations
Population growth dynamics. Concepts of overpopulation, underpopulation and optimum population. Implications of population size and structure for the balance between population and resources; the concepts of 'carrying capacity' and 'ecological footprint' and their implications.

Learning outcomes
This lesson will help students to understand:
• Overpopulation, underpopulation and optimum population.
• The concept of carrying capacity and ecological footprints and how they are calculated.
• Implications of exceeding carrying capacities and increasing ecological footprints.

Suggested timing
2 hours

Possible teaching and learning activities
• Discuss the meaning of the population ecology and key terms associated with it such as biotic potential and environmental resistance, these are known as 'limiting factors'.
• Define what is meant by density dependent and density independent limiting factors. Can students think of any examples of either?
• Watch the 4 minute video on global population growth (YouTube) and look at some of the statistics and graphs from Our World In Data. What evidence is there that we humans have overcome much of the environmental resistance facing humanity. What advances have made this possible?
• Ask students whether they believe the planet is over-populated or underpopulated. Why do they think this. Define what overpopulation, underpopulation and optimum population are. Ask students to write down the characteristics of an area that is experiencing either overpopulation or underpopulation.
• Discuss the meaning of 'carrying capacity' and how carrying capacity can be calculated using ecological footprints. Explain how Professor William Rees used the 'total productive bio-capacity of the Earth' and divided it by the total population to give the ecological footprint per person as global hectares (gha).
• Explain to students this measurement varies widely across the globe as productivity and consumption varies greatly. Ask students to look at the 'Ecological Footprint of Consumption 2019' (Worldmapper) showing the global distribution of ecological footprints. Ask students to describe the distribution shown on the map.
• Because the concept of 'carrying capacity' introduces a limit. Provide students with a copy of the sigmoidal 'S' curve of population growth, what does this show? Ask students to annotate the model with explanations of what happens over time regarding population size as carrying capacity is reached or overshot.

- Start to discuss with students the implications of exceeding carrying capacity. Some statistics suggest that the humanity's global ecological footprint is unsustainable and already in a state of 'overshoot'. Discuss what overshoot means and explore the concept of earth overshoot day (Overshoot footprint network).
- Ask students to consider the implications of enlarging our ecological footprints and to add these to a diagram in their notes. Students could break these down into social, economic, environmental and geo-political implications.
- Discuss with students the notion that carrying capacity is not static. What do students think might increase the earth's carrying capacity or what might potentially lower it?

Population, resources and pollution model

Specification content

3.2.4.5 Principles of population ecology and their application to human populations

Population, resources and pollution model: positive and negative feedback. Contrasting perspectives on population growth and its implications; Malthusian, neo-Malthusian and alternatives such as associated with Boserup and Simon.

Learning outcomes

This lesson will help students to understand:
- Positive and negative feedback mechanisms within the context of population growth.
- Population, resources and pollution model showing human interactions with their environment.
- The ideas of Malthus and neo-Malthusians.
- 'Possibilistic philosophy' and Esther Boserup's perspective on population growth.
- Julian Simon's beliefs regarding population growth and evidence to support his ideas.

Suggested timing

2 hours

Possible teaching and learning activities

- Explain to students what positive and negative feedback mechanisms are. Can students think of any examples of positive and negative feedback mechanisms from their studies? Students may refer to climate change mechanisms such as the albedo effect or increased cloud cover.
- Provide students with a simplified version of the PRP model. Ask students to annotate the model to explain the positive and negative feedback mechanisms within the model.
- Discuss what is meant by a 'feedback spiral'. Explain how population growth may have created several feedback spirals such as increasing populations result in a drive towards increasing agricultural productivity.
- Ask students to create a mind map of the significant challenges faced by the modern world caused by population growth. These can be categorised into environmental degradation, economic loss, political conflict, and social disruption. Ask students to annotate each category with specific examples. For example, in the category of environmental degradation students might highlight deforestation, reduction of urban air quality, increased pollution.
- As an extension students can start making links between the categories. For instance, environmental degradation of resources such as water may lead to political conflict over that particular resource, or increased unemployment may lead to difficulties providing adequate healthcare and education.
- Ask students to write down any potential advantages and disadvantages they feel will become apparent in the future due to rapid population growth. Explore whether their outlook for the future is positive or pessimistic and why they might think this. At this point

you may wish to introduce the 'possibilistic philosophy' and explore how students feel this reflects their own thoughts on population growth.

- Introduce students to Thomas Malthus and his "Essay on the Principle of Population". Provide students with a Malthusian diagram showing the relationship between population and resources. What do they think it is showing? Why is his view of population growth 'pessimistic'?
- Explain to students what is meant by 'positive' and 'negative' checks on population growth. Can students think of any examples? Do students think a 'Malthusian Catastrophe' is a likely occurrence.
- Introduce the Club of Rome and explain that, despite Malthus's ideas being published over two hundred years ago, there are neo-Malthusians such as Paul Ehrlich who support his ideas. Provide students with the graph showing the forecast form the publication Limits to Growth and ask them to annotate it describing what is happening to the variables.
- Ask students what they understand the phrase "necessity is the mother of all invention" means. Introduce Esther Boserup and her 'possibilistic philosophy'. What evidence is there to suggest that she is right or what advances have we made that have avoided a 'Malthusian catastrophe'? Most students will tend to focus on advances in technology and intensive farming but may not focus on vital but less well-known advances such as the Haber-Bosch process and genetic modification.
- Discuss the academic work of Julian Simon and his arguments, published in 'The Ultimate Resource'. Simon argued that every important long-term measure of human material welfare shows improvements in all parts of the world, demonstrating that despite rapid population growth, humans are measurably better off. Ask students to use the Gapminder trends tool to search for evidence in support or not of Simon's ideas. Students could look at trends in life expectancy, income, mortality and other indicators.
- Ask students which of the theories they believe is closest to the reality of population growth. Why do they think this and what evidence are they choosing to use?

Resources

- Watch the 6 minute video: 'The challenge of population growth with Sir David Attenborough' (Wellcome).
- Watch the 8 minute video: 'Is overpopulation really a problem for the planet?' (YouTube).
- Explore the Interactive graph showing the relationship between GDP per capita and life expectancy 1800-2023 (Gapminder).
- Watch the 4 minute video: 'The infamous overpopulation bet: Simon vs. Ehrlich - Soraya Field Fiorio' (YouTube).

Health impacts of global environmental change

Specification content

3.2.4.6 Global population futures
Health impacts of global environmental change: ozone depletion – skin cancer, cataracts; climate change – thermal stress, emergent and changing distribution of vector borne diseases, agricultural productivity and nutritional standards.

Learning outcomes
This lesson will help students to understand:
- Ozone depletion.
- The health impacts of exposure to harmful UV rays.
- How climate change and environmental change can impact health.

Suggested timing
1 hour

Possible teaching and learning activities
- Ask students to consider what the major environmental changes of the future might be.
- Explain to students what the ozone layer is and the important role it plays in filtering out harmful ultraviolet (UV) rays from the sun. Ask students to create a diagram showing the ozone layer in the atmosphere and its composition. Watch the 5 minute video 'What happened to the hole in the ozone layer?' (YouTube) for students to note the reasons for the depletion of the ozone layer and the action taken to limit further damage.
- Ask students to create a mind map of the potential impacts to health caused by exposure to UV light. These are: skin cancer, cataracts, and an increase in infectious diseases caused by a weakening of the immune system. Provide students with some information regarding these health implications and ask them to ensure they annotate each with the link to UV light, details of the symptoms, prevention and treatment and some important statistics.
- Discuss with students what we know about climate change and what the latest projections are regarding the likely impacts. Provide students with a version of the diagram (California Dept of Health). Use the information on 'Climate change' on the WHO's website and the UK governments publication webpage to annotate the diagram with explanations as to why these impacts on health will happen. For example, students might explain the spread of vector-borne diseases such as malaria and dengue could expose an additional billion people to the risk of infection by the end of the century, this is because these diseases are climate-sensitive and more populated areas may become climatically suitable for the disease to spread.

Resources

- Watch the 6 minute video: ['Skin Cancer, Causes, Signs and Symptoms, Diagnosis and Treatment'](#) (YouTube).
- Watch the 1 minute video: ['Animation: Cataract'](#) (YouTube).
- Watch the 4 minute video: ['Understanding How Climate Change Impacts Human Health'](#) (YouTube).
- Watch the 4 minute video: ['How climate affects community health'](#) (YouTube).

Prospects for global population change

Specification content

3.2.4.6 Global population futures
Prospects for the global population. Projected distributions. Critical appraisal of future population environment relationships.

Learning outcomes
This lesson will help students to understand:
- Key prospects for population growth.
- Why there is uncertainty over global population growth projections.

Suggested timing
1 hour

Possible teaching and learning activities
- The world's population is likely to rise by around 75% by 2100, compared to the over 400% rise of the last century. What do students believe are the key drivers of this change?
- Remind students what is meant by 'fertility rates' and 'life expectancy'. Use the 'Declining Birth Rate' graphs (Visual Capitalist), ask students to describe what is happening to global fertility rates globally. Use the life expectancy calculator (National Statistics) to explore the differences in life expectancy. Use the life expectancy graph (Our World In Data), ask students to describe the graph.
- Examine the UN graph of global population projections. Can students explain why there is a great deal of uncertainty over the projections? Discuss what is meant by constant, medium, high and low variants. Ask students what these variants predict the global population will be by 2100. Discuss that there is a 95% chance of global population being between 9.40 and 12.70 billion by 2100.
- Discuss the more optimistic projections and the three reasons that some demographers think that global population growth will be lower than projected. These are: China's slowing birth rate, over-estimating rapid population growth in Nigeria and the strong negative correlation between level of female education and fertility.
- Provide students with a list of points in the summary of prospects for future population growth. A summary of the key findings from the UN report can be found in the resources. Ask students to create an infographic that displays the prospects for future population growth by using the information in the summary document.

Resources
- Read the article: World Population Prospects 2024: Summary of Results | DESA Publications
- Watch the 2 minute video Mapping global population and the future of the world (YouTube).

Case study: Country experiencing specific patterns of overall population change

Specification content

3.2.4.7 Case studies
Case study of a country/society experiencing specific patterns of overall population change – increase or decline – to illustrate and analyse the character, scale, and patterns of change, relevant environmental and socio-economic factors and implications for the country/society.

Learning outcomes
This lesson will help students to understand:
- The environmental factors of the case study that impact demographics.
- The character, scale and nature of the population change in the chosen case-study.
- The causes of the demographic changes in the chosen case-study.
- The implications of these changes for in the chosen case-study.

Suggested timing
2 hours

Possible teaching and learning activities
- Inform students that they are going to research a particular country that is experiencing specific overall patterns of population change and examine the reasons for and implications of those changes.
- Students could create a fact file, presentation, large infographic or structured worksheet about the country. Ask them to create a section on the environmental factors of the country. They should describe the location, climate, topography and other significant environmental factors that may have a bearing on the demographics of the country. Read the article for an example for Iran (Studocu).
- Ask students to describe the character, scale and nature of the population changes the country has undergone. You may wish to provide students with some information about the country's demographic history to help them at this point. Websites such as Our World in Data contain historical as well as up to date demographic information on most countries. Population Pyramid also has both current and historical population pyramids for information regarding population structure.
- Students should then look into the socio-economic factors that have the changes in population. They could categorise these into social, economic and political factors.
- Ask students to research the implications of the population change. Students can, initially sort these into positive and negative implications for the country, but later could start to order these in order of significance with an explanation for the most significant implications.
- Students can then consider the responses of the government detailing the aims of the policies, before evaluating the effectiveness of these policies with an explanation, as well as evidence in data for their success or perhaps lack of.

Resources

- Read the article: 'Japan's population crisis was years in the making – and relief may be decades away' (CNN).
- Read the article: 'Japan – Demographic Shift Opens Door to Reforms' (International Monetary Fund).
- Read the article: 'China population decline accelerates as birthrate hits record low' (The Guardian).
- Read the article: 'Population Growth in Iran Near Zero Due to Poor Life Quality' (Iran Focus).
- Watch the 2 minute video: 'Why Does Japan Have So Few Children?' (BBC News).
- Watch the 5 minute video: 'What India's Population Surpassing China's Means for Global Economies' (Wall Street Journal).
- Watch the 7 minute video: 'Why China's Population is Shrinking' (Vox).
- Watch the 2 minute video: 'What will be the consequences of China's declining population?' (DW News).
- Watch the 2 minute video: 'Iran's Birth Rate Decline' (YouTube).

Case Study: Specified local area: place, health and well-being

Specification content

3.2.4.7 Case studies

Case study of a specified local area to illustrate and analyse the relationship between place and health related to its physical environment, socio-economic character and the experience and attitudes of its populations.

Learning outcomes

This lesson will help students to understand:
- Where the chosen area is and the physical geography of the location and locale.
- The physical geography of the area and the potential links to health and well-being.
- The socio-economic status of the area and the potential links to health and well-being.

Suggested timing

2 hours

Possible teaching and learning activities

- Provide students with some background information on the chosen area of study or alternatively ask students to conduct the research themselves. Students should include a description of the location and locale as well as historical information which may be relevant to the area's current socio-economic status.
- Create a short profile of the physical geography of the area. Ask students to describe the physical and human features of the area, these may include significant physical features such as rivers, natural harbours, and human features such as the built environment and population density. Climate data is available from the Met Office.
- Ask students to create a socio-economic profile of the area using data available from a variety of sources. Start by looking at the Index of Multiple Deprivation Data (Consumer Data Research Centre) and the 'English indices of deprivation 2019' (Ministry of Housing, Communities & Local Government). Other sources of socio-economic data are available in the resources section.
- Ask students to pay particular attention to your chosen area 'Health Profile'. Once the data from your area has been identified, request that students include the significant indicators in their notes. Indicators they may wish to include fall into the broader categories of inequalities, child health, behavioural risk factors, life expectancy and causes of death. Ask students to identify any of these indicators that stray far away from the mean for the rest of England.
- Look at the personal well-being data for your chosen area using Office for National Statistics Personal well-being interactive map. How do the attitudes of the population of your chosen area compare to the national average or regional average? What might the explanation for this be? Could it be linked to socio-economic factors or the physical and human geography of the area?
- Ask students to start to try to make links between the health indicators that they have identified and possible causes. For instance, the chosen area may have a lower-than-average percentage of adults over 18 who area classed as physically active, which may explain higher than average admissions to hospital for cardiovascular conditions, or

higher smoking prevalence of adults may be linked to higher than average admissions for smoking-related illnesses such as cancers.

- Some of the indicators may be linked to the wider environment such as air quality and emissions. Students can look at this data on the [National Atmospheric Emissions Inventory](#) or [Air Quality in England](#). Ask students what the health implications for their findings might be?
- Ask students to create a mind map diagram that visually summarises the health and well-being of area of study. The diagram can be broken down into indicators of good health and indicators of poor health. For each indicator of good or poor students should explain the implications of this and identify possible causes. For instance, students may have identified obesity (overweight prevalence) as an issue for the area. Students may link this to other statistics such as the percentage of physically active adults, and other issues such as diabetes. They may explain this by looking at socio-economic factors such as income and deprivation. Lower levels of homelessness and higher academic attainment may be linked to longer life expectancy. Some students may link health indicators to the physical geography, such as communities close to mountainous areas tend and national parks to be healthier. Stress that students should also include the attitudes of the population (happiness, worthwhile and anxiety).
- Ask students to summarise in a short conclusion the health and well-being of the chosen area with the significant stand out indicators of health and well-being addressed with a possible explanation(s).

Resources
- Explore the [Datashine interactive map](#).
- Read the article: [Index of Multiple Deprivation (IMD)](#) (CDRC Data).
- Visit the [UK Police website](#).
- Read the article: [Public Health Outcomes Framework](#) (Dept of Health and Social Care).