

**Student information sheet: Malthus and Boserup**

In 1798 Malthus published an essay called “The principle of population”. He decided that the rate of population growth was faster than the rate that food supplies could grow. In time, there would not be enough resources for everyone. Malthus didn’t believe in contraception or abortion, therefore uncontrolled rates of human reproduction would lead to geometric rates of increase in population.



Geometric rates: 2, 4, 8, 16, 32, 64 and so forth.

Food supplies on the other hand would only increase by arithmetic progression - 2, 4, 6, 8, 10.

Malthus believed that there was an optimum population size, if the population grew too big this would lead to war, famine and disease as there would not be enough food.

He claimed that population should be kept down by two types of checks:

1. Positive checks: starvation, disease and war
2. Preventative checks: postponing marriage and lower birth rates.

Clearly in 1798 people thought very differently about the world. Women would have had more babies and there was very little industry or heavy machinery to help them produce more food.

In 1965 Esther Boserup, a Danish economist, showed that having a large and growing population would lead to innovation; more people means more ideas.

Innovation would bring about new technology that would increase economic efficiency and crop yields. She looked at historical information and from this she could see that when the population grew, this led to the development of infrastructure, roads and the creation of cities.

Boserup wrote “necessity is the mother of invention.” That means, if you need it, someone will invent it. So if more food was needed she wrote that people would invent ways of increasing food supply. We have achieved this through genetically modified crops.

In 1965 we had more heavy machinery and industry therefore we were more able to increase food supplies. Communication and transportation had improved and science had dramatically changed the way in which we produce food.



So who was right? Is there an optimum population? Is necessity the mother of invention? We know that we are entering a global food crisis so was Malthus right ... or are we on the edge of new discoveries?

**Student task:**

1. What year did Malthus write his essay?	2. What is an optimum population?	3. What two things didn't Malthus believe in?	4. Give an example of a preventative check.
5. What did Malthus believe would happen if the population grew too large?	6. What did Boserup believe about the increase in population?	7. Who had a pessimistic view?	8. What is geometric rate increase?
9. Who wrote "necessity is the mother of invention"?	10. What was Malthus' essay called?	11. What year did Boserup write her theory?	12. What had changed by 1965?
13. What is arithmetic rate increase?	14. Who had an optimistic view?	15. Give an example of a positive check.	16. What is contraception?

You have 5 minutes to answer as many questions as you can.

Work together to score as many points as you can.

**Max score 37**

**Points:**

1	2
3	4

**Sentence starters**

The key idea of Malthus' theory is ...

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I believe he is correct/incorrect because ...

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The key idea of Boserup's theory is ...

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I believe she is correct/incorrect because ...

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In conclusion I believe that ...

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### Student information sheet: the global wheat crisis

In December 2007 the price of wheat broke through the US\$ 10 a bushel level which sparked protests in Pakistan and other countries as rising wheat prices angered customers as they could no longer afford as much as they used to buy. Only two years previously the price of wheat averaged US\$ 3.5 a bushel. Many countries had become used to a grain surplus. There was more wheat available than was needed.

India is the second largest consumer of wheat; it became a large net importer in 2006 after a six year period as a net exporter. This means that they brought a lot of wheat into the country, whereas previously they used to grow it and sell it to other people. In 2007, India tried to buy 50% more grain than suppliers were offering. With their growing population they needed more wheat, but were unable to buy enough to meet the demand.

At the same time Russia was considering limiting how much wheat they exported to prevent domestic prices rising too rapidly. They wanted their population to be able to afford to buy wheat.

Australia, the third biggest exporter of wheat warned its output might be 18% less than a previous government estimate due to a second year of drought. They were suffering with long periods of very dry weather.

A late season drought in the Ukraine also had a considerable impact on its wheat production.

In Morocco the crop was down 76%. They too were suffering from long periods of drought.

Argentina temporarily halted wheat exports to assess damage caused by cold weather. Wheat needs certain temperatures in order to grow.

The main problems with the supply of grain are that:

- Most good-quality farmland is already being used for growing other crops which aren't just used for food. Lots of crops are now used for biofuel.
- About a third of this land has been significantly degraded by intensive farming in the last 50 years. To make a lot of money farmers need to grow a lot of crops, all year round. This isn't very good for the soil.
- There are many predictions that 30% of all agricultural land could be unusable by 2025.
- Desertification led to the world's deserts expanding by 160 million hectares between 1970 and 2000. This land cannot be farmed as the soil lacks nutrients.

### Teacher notes

#### **Starter:**

What is a global food crisis? Students to think, pair, share in order to come up with a definition. They should then write this into their books. They then need to predict what causes a global food crisis.

#### **Main:**

Introduce students to Malthus and Boserup and give them the text to read in pairs. Students must not write any notes for this. Set them a limited amount of time, maybe ten minutes to read the text. After this time the text is taken away and they have five minutes to answer as many questions as they can on the challenge grid. The different colour questions correspond to a number of points. The answers are on the next slide.

Students to then choose either a differentiated (basic, clear, detailed) question to answer on which theorist was correct. There are sentence starters to go with the basic question.

Introduce students to the idea that wheat was running out in 2007.

Students to read through the wheat sheet and annotate the issue on the world map.

#### **Plenary: 3, 2, 1**

Three facts about Malthus and Boserup

Two reasons why food could run out.

One reason why conflict could occur as a result of food.