

Student worksheet – Sustainable development

Feeding humanity

Read the text below and watch the interview hidden behind the QR code below. Then discuss the assignment with the nearest classmate who is working with the same theme as you. You will find the discussion questions on the next page.



The world's population is increasing and everyone needs food. More effective and intensive agriculture has made it possible for more and more people to have enough to eat. Access to food involves not only production but also factors such as trtion, trade and politics.

Several Nobel Laureates have contributed to improving how food is produced and distributed.

How can we produce food without seriously damaging our environment? How can we distribute the food so that everyone can satisfy their hunger?

CHEMICAL FERTILIZERS

For bountiful harvests, you need fertilizer. For a long time, manure from cattle predominated in agriculture, but beginning about 100 years ago, industrially manufactured chemical fertilizers have been used on a large scale. Nitrogen is an important fertilizer. It is present in the air, but to be absorbed by plants, it needs to be bound up in chemical compounds.

In the 1910s **Fritz Haber** and **Carl Bosch** developed a process that converts nitrogen in the air into ammonia. The Haber-Bosch process became the most important basis for manufacturing chemical fertilizers. Chemical fertilizers have made it possible to increase the production of food, but they can also be detrimental to the environment, among other things through eutrophication of lakes and streams.



Fritz Haber in his laboratory.



Watch the interview with a researcher by scanning the QR code with your mobile phone. The interview can also be found at this internet link:

<https://www.youtube.com/watch?v=d9-KVfA5XZ0&feature=youtu.be>

Assignment

Use the text you read, the interview you watched and the picture below of the global goals.

You have spoken earlier about the global Sustainable Development Goals. Now you should think about whether the contributions of Nobel Laureates Fritz Haber and Carl Bosch have helped the world move closer to achieving the global goals.

1. Which of the global goals have been affected the most by the work of the two Laureates? (Find at least two goals.)

2. In what way has their work had a positive impact on efforts to achieve these goals?

3. Has the work of the two Laureates had any negative impact on efforts to achieve one of the global goals?

