

CLIL Review: Lösungen

CLIL REVIEW, S. 111

Individual answers; sample answer:

To encourage *Lifelong Learning*, companies can offer training, and governments can support adult education. People can also keep learning by reading books, watching videos, or taking online courses.

Besides schooling, there are many ways to learn. Self-learning includes reading or watching educational videos. Workplace learning happens through job training or mentoring. Community learning includes joining clubs or volunteer work. Online learning on platforms also plays a significant role in lifelong education.

CLIL REVIEW, S. 123

Individual answers; sample answer:

Neurotransmitters have important functions in the body. They help send messages between nerve cells and control various processes like mood, sleep, and appetite. For example, serotonin helps regulate mood and appetite, while melatonin controls sleep and the body's internal clock. Without neurotransmitters, the brain and body would not function properly.

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- 1 The bacteria Frederick Griffith worked with was **Streptococcus pneumoniae**.
- 2 This type of bacteria can cause **pneumonia**, a serious respiratory illness.
- 3 Griffith isolated a pathogenic strain called the **S-strain (smooth)** (a) and a harmless strain, the **R-strain (rough)** (b).
- 4 His assumption was that **heat** killed the bacteria.
- 5 This theory had already been experimentally proven by Louis **Pasteur**.
- 6 The so-called "transforming principle" appeared to be a **gene**.
- 7 The "transforming agent", **DNA** (a), was discovered by Oswald **Avery** (b) and his team.

CLIL REVIEW, S. 183

Individual answers; sample answer:

The base composition of DNA differs between organisms, as shown in Chargaff's research. However, in each species, the amount of adenine (A) is approximately equal to thymine (T), and the amount of guanine (G) is approximately equal to cytosine (C).

These findings support Watson and Crick's double-helix hypothesis because they suggest that DNA has a complementary base-pairing system. In their model, A always pairs with T, and G always pairs with C, creating a stable and structured DNA double helix. This explains how genetic information is stored and replicated accurately.

CLIL REVIEW, S. 194

Individual answers; sample answer:

Steps of Protein Synthesis:

- 1 **Transcription** – DNA is copied into **mRNA** in the nucleus to protect the genetic code. The mRNA then moves to the cytoplasm.
- 2 **Translation** – Ribosomes read the mRNA and assemble amino acids into a **protein**.

Proceedings at the Polysome:

A **polysome** is a chain of ribosomes translating the same mRNA at the same time. This speeds up **protein production**, allowing cells to produce large amounts quickly.

Types of Vaccines:

- 1 **Live attenuated vaccines** – Contain a weakened virus (e.g., measles vaccine).
- 2 **Inactivated vaccines** – Use a killed virus (e.g., polio vaccine).
- 3 **Subunit vaccines** – Include only parts of a pathogen (e.g., HPV vaccine).
- 4 **mRNA vaccines** – Contain mRNA instructions for a viral protein (e.g., COVID-19 vaccine).

mRNA Vaccines & Protein Synthesis:

mRNA vaccines work **through protein synthesis**:

- 1 The vaccine **introduces mRNA** coding for the pathogen's protein.
- 2 Ribosomes **read the mRNA** and build the protein.
- 3 The immune system **recognizes the protein** and produces antibodies for protection.