

Models of energy flow between the geosphere, biosphere, hydrosphere and...

use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change

Learning intention

- use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change

Teach and model

- examining the role of radiation from the sun and how its interactions with the atmosphere, ocean and land are the foundation for the global climate system
- investigating indicators of climate change such as changes in ocean and atmospheric temperatures, sea levels, biodiversity, species distribution, permafrost and sea ice
- identifying changes in global climate over time, exploring visualisations and using simulations to explore why energy balances have changed

Check understanding

- Explain the main idea in models of energy flow between the geosphere, biosphere, hydrosphere and... using an example.
- Show the idea in a second way: with words, a model, a diagram or symbols.
- Apply the idea to a short unfamiliar situation and justify the result.

Teaching cautions

- Ask the student to explain their choice, not only state an answer.
- Check that key vocabulary is understood in a new example.
- Mix representations so the skill is transferred rather than copied.

Quick lesson sequence

- Connect to prior knowledge and introduce the key vocabulary.
- Model one clear example, then solve a second example together.
- Finish with an independent check and a short student explanation.