**Biology: Optional preparation tasks for Topic 1.**

**Documentaries**:

* “[Our Changing planet](https://www.bbc.co.uk/iplayer/episodes/m0016t0g/our-changing-planet?seriesId=m001l5my)” – series looking at six endangered habitats and the efforts to find solutions
* “[Kiss the Ground](https://www.youtube.com/watch?v=pNGj2vXpKHE)” – how soil regeneration could be a solution to the climate crisis (YouTube)

**Articles**:

* [Researchers find that behavioral flexibility and persistence help species, like the great-tailed grackle, expand their range and adapt to new habitats](https://www.mpg.de/20729532/0809-evan-a-bird-species-rapidly-expand-its-range-150495-x)
* [Replanting logged forests with diverse seedlings accelerates restoration, says Oxford study](https://www.ox.ac.uk/news/2023-09-18-replanting-logged-forests-diverse-seedlings-accelerates-restoration-says-oxford)
* [Limited understanding of basic ocean processes is hindering progress in marine carbon dioxide removal](https://iopscience.iop.org/article/10.1088/1748-9326/ad502f)
* [Summer solstice triggers synchronised beech tree reproduction across Europe](https://news.liverpool.ac.uk/2024/03/13/summer-solstice-triggers-synchronised-beech-tree-reproduction-across-europe/) [HL]

**Research**: explain how the following positive feedback cycles worsen the impact of climate change

*Note – positive feedback is a process where the outcome of an action causes more of that action to occur, intensifying the response.*

1. Increases in absorption of solar radiation due to loss of reflective snow and ice
2. Accelerating rates of decomposition of peat and previously undecomposed organic matter (eg, dead organisms and waste) in permafrost
3. Release of methane from melting permafrost
4. Increases in droughts and forest fires
5. Release of carbon dioxide from deep ocean

**Synoptic link challenge**: Make as many links as you can between the research into positive feedback cycles and biological concepts you have studied at GCSE or earlier in your scientific education.

* (eg) solar radiation is absorbed by chlorophyll during the process of photosynthesis [link to a]
* (eg) carbon dioxide is released in excretion by all living organisms, as a result of respiration [link to e]