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| Living with the physical environment: The Living World  Autumn term (10 weeks):  **Why are we studying this unit of work?**  This unit builds on pupils’ knowledge that was built in KS3. It provides pupils with the understanding of interdependence within the globes natural large-scale environments and builds an understanding of the interrelationships between plants, animals, and the environment. It allows pupils to build their understanding of the interaction between large-scale global ecosystems and human activity, and how these interactions can provide both opportunities and challenges. It relates to up-to-date case studies and relevant, topical issues currently faced across the world.  **How does this unit build on students’ prior learning?** This unit builds on the foundations that have been introduced at KS3. It directly links to the Year 9 Biomes unit allowing pupils to build a more complex understanding of Tropical Rainforests and Hot Desert environments. It also builds on prior knowledge from the Year 8 unit of World development, allowing pupils to make complexed links between developing LIC’s and NEE’s and the impact this can have on the environment and our ecosystems.  **How does this unit provide a foundation for future learning?** Pupils can apply their knowledge and understanding of the opportunities and challenges of development and relate these to content taught in The Changing Economic World unit which is to follow. Pupils will need the knowledge and understanding gained in this unit to complete their Paper 2 GCSE exam.  **SMSC/Careers:** Interpreting graphs/maps – link to Maths. Climate change, biomes, nutrient cycle and food webs – links to Science. Careers – Environmental agency, mineral extraction, farming, ecotourism, Scientist. Skills builder: Problem solving: create solutions for complex problems by evaluating the positive and negative effects of a range of options, Team work: Improve the team by resolving unhelpful conflicts, debating topical issues in relation to conservation of the environment, and Aim higher: Create plans that are informed by my skill set and that of others. Analyse and evaluate human impact on the world’s biomes.  **Summative assessment:** Examination covering this unit, incorporating AO1, AO2 and A03.  End points:  **Lower ability:** Students know: Ecosystems exist at a range of scales and involve the interaction between biotic and abiotic components. An example of a small scale UK ecosystem to illustrate the concept of interrelationships within a natural system, an understanding of producers, consumers, decomposers, food chain, food web and nutrient cycling. Tropical rainforest ecosystems have a range of distinctive characteristics. Deforestation has economic and environmental impacts. The physical characteristics of a tropical rainforest. Hot desert ecosystems have a range of distinctive characteristics. The physical characteristics of a hot desert. Development of hot desert environments creates opportunities and challenges. Areas on the fringe of hot deserts are at risk of desertification.  **Middle ability:** In addition to the basic response students can explain: The balance between components. The impact on the ecosystem of changing one component. An overview of the distribution and characteristics of large-scale natural global ecosystems. How plants and animals adapt to the physical conditions. Changing rates of deforestation. A case study of a tropical rainforest to illustrate: • causes of deforestation – subsistence and commercial farming, logging, road building, mineral extraction, energy development, settlement, population growth The interdependence of climate, water, soils, plants, animals and people. How plants and animals adapt to the physical conditions. A case study of a hot desert to illustrate: Challenges of developing hot desert environments: extreme temperatures, water supply, and inaccessibility. Causes of desertification – climate change, population growth, removal of fuel wood, overgrazing, over-cultivation and soil erosion.  **Higher ability:** In addition to the clear response student make links and apply learning to: The interdependence of climate, water, soils, plants, animals and people. Issues related to biodiversity. Impacts of deforestation – economic development, soil erosion, contribution to climate change. Tropical rainforests need to be managed to be sustainable. Value of tropical rainforests to people and the environment. Strategies used to manage the rainforest sustainably – selective logging and replanting, conservation and education, ecotourism and international agreements about the use of tropical hardwoods, debt reduction. Issues related to biodiversity. A case study of a hot desert to illustrate: development opportunities in hot desert environments: mineral extraction, energy, farming, tourism. Strategies used to reduce the risk of desertification – water and soil management, tree planting and use of appropriate technology.  Literacy Focus:   * SPaG – Spelling * Vocabulary – Frayer/PUSH * Oracy – SLANT/Paired talk/Sentence Stems * Writing – Extended writing using writing frames and modelling * Reading – Inference | | | | | |
| Time | Non negotiables | | | Adapt to the needs of the class | |
| Key Idea | Content | Key Vocabulary / Case Study | Suggested approaches to learning and resources | Assessment/Homework/Cross-curricular links |
| 1 | What is an ecosystem?  (1 lesson) | Know more: How do biotic and abiotic components interact in ecosystems at a range of scales?  Do more: Describe an example of a small-scale UK ecosystem to illustrate the concept of interrelationships of producers, consumers, decomposers, food chain, food web and nutrient cycle. Explain the impact on the ecosystem of changing one component.  Go further: Problem Solving – understand the impact of change in an ecosystem due to interrelationships between components. | AV: FRAYER MODEL: Ecosystems  Root meaning: from the Greek ‘oikos’ and ‘systema’ meaning home and system. | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Frayer model – Ecosystem. Nutrient cycle – draw and annotation. Introduction of UK ecosystem – Pond. Play GCSE Pod video on Ecosystem Balance – class discussion to assess understanding of interrelationships.  Checkpoint: Statements relating to interrelationships and changes within an ecosystem.  Content: Pupils stick food chain image in their books. Answer questions based on food chain and impact of changing one component.  Concentration/Application: Exam question  Consolidation: Quiz.  **Challenge:**  **Support:**  **Notes:** | Live marking  Cross curriculum links to Science – food chains/webs, nutrient cycle, biomes. |
| 2 | Where are large-scale global ecosystems located?  (1 lesson)  What are the characteristics of a Tropical Rainforest?  (1 lesson) | Know more: Where are large scale ecosystems located?  Do more: Be able to describe the distribution and characteristics of large scale natural global ecosystems.  Go further: Problem solving: Be able to use skills to give an overview of the distribution and characteristics of large scale natural global ecosystems. |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Map of large-scale global ecosystems – interpret map by answering questions.  Complete the fact file using information sheet/GCSE Pod videos of characteristics of each ecosystem.  Checkpoint - distribution  Concentration/Application: Exam question  Consolidation: Self assess exam question  **Challenge:**  **Support:**  **Notes:** | **Self-assessment**  Cross curriculum links to Science – food chains/webs, nutrient cycle, biomes. |
| 3. | Know more: What are the physical characteristics of a tropical rainforest?  Do more: Explain the interdependence of climate, water, soils, plants, animals, and people.  Go further: Aim Higher: Explain the impacts of destroying a large scale ecosystem. |  | Connect: knowledge, skills and vocabulary retrieval.  Content: Label the diagram – layers of the TRF.  GCSE Pod video on Tropical Rainforest Features.  Checkpoint – features of TRF  Pupils to read the information on soils in the rainforest – need to understand the interdependence of climate, water, soils, plants, animals and people – complete mind map/dual coded diagram and make connections.  Concentration/Application: Exam question from exampro.  Consolidation: White board quiz  **Challenge:**  **Support:**  **Notes:** | Cross curriculum links to Science – food chains/webs, nutrient cycle, climate change. |
| 4. | How do plants and animals adapt to the physical conditions of a Tropical rainforest?  (1 lesson) | Know more: How do plants and animals adapt to the physical conditions of the Tropical Rainforest Ecosystem?  What issues arise relating to biodiversity?  Do more: Explain how plants and animals adapt to the climatic and environmental conditions of the Tropical Rainforest. Make connections to biodiversity.  Go further: Problem Solving: Make connections between plant and animal adaptation and the climatic and environmental conditions of the Tropical Rainforest. |  | Connect: knowledge, skills and vocabulary retrieval.  Content: Push model – biodiversity.  Carousel activity – timed carousel to gather information to complete a table on how different plants and animals have adapted to conditions of the Tropical Rainforest. Pupils to complete table during carousel.  GCSE Pod – complete green pen of table of adaptation while watching the video.  Checkpoint – adaptations.  Issues relating to Biodiversity – think, pair, share. Annotate images provided.  Checkpoint – issues with biodiversity.  Concentration/Application: Exam question from exampro  Consolidation: Exit ticket  **Challenge:**  **Support:**  **Notes:** | Exit ticket |
| 5. | Case Study  What are the causes of deforestation?  (1 lesson) | **Suggested case study: Amazon Rainforest**  Know more: What are the changing rates of deforestation?  Do more: Identify patterns in the changing rates of deforestation.  Explain the causes of deforestation.  *(Subsistence and commercial farming, logging, road building, mineral extraction, energy development, settlement, population growth).*  Go further: Aim high to interpret graphs and maps to identify patterns of deforestation rates. |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Map of deforestation across the world – describe the distribution of deforestation.  Graph/map to show changes in rates of deforestation overall and a graph to show changes in rates in the Amazon – pupils to describe the pattern – discuss as a class.  Check point – rates of deforestation.  Locate the Amazon.  Pie chart of causes of deforestation – discuss as a class most common cause.  GCSE Pod – The Amazon causes of deforestation and complete the table by summarising each cause.  Checkpoint – causes of deforestation.  Concentration/Application: Exam question: exampro  Consolidation: Quiz  **Challenge:**  **Support:**  **Notes:** | Cross curriculum links to Science – climate change. Maths – interpreting graphs, charts and maps. |
| 6. | Case Study  What are the impacts of deforestation?  (1 lesson) | **Suggested case study: Amazon Rainforest**  Know more: What are the environmental and economic impacts of deforestation?  Do more: Evaluate the  Impacts of deforestation on economic development, soil erosion, and it’s contribution to climate change.  Go further: Aim high to assess and evaluate the impacts of deforestation – making a judgment on the extend in which these are negative. |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: YouTube clip: <https://www.youtube.com/watch?v=yzVcrtvgWJU>  Should the advert have been banned? Class discussion – link to impacts of deforestation.  Pupils to create a mind map of impacts - GCSE Pod – The Amazon – impacts of deforestation.  Checkpoint – impacts of deforestation.  Card sort – classify impacts into social, economic, environmental.  Concentration/Application: Exam question: exampro  Consolidation: Interactive recall quiz on causes and impacts of deforestation  **Challenge:**  **Support:**  **Notes:** | Self-assessment  Cross curriculum links to Science – soil. |
| 7. | Why do tropical rainforests need to be managed to be sustainable?  (1 lesson) | Know more: How valuable are tropical rainforests?  Do more: Explain why tropical rainforests need to be managed to be sustainable.  Go further: Teamwork: Discuss in teams the importance of the Tropical Rainforest. |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Paired discussion – why are tropical rainforests valuable to people and the environment?  Watch GCSE Pod on Tropical Rainforest Value and write down information under the following headings:  Importance to people  Important to the environment.  Smart Reader on Rainforest importance.  Checkpoint – environmental value of TRF.  Smart reader on importance of the rainforest.  Checkpoint – why rainforests are valuable.  Concentration/Application: Practice exam questions from 2018 paper 3 – relating to figure 1.  Consolidation: Quiz  **Challenge:**  **Support:**  **Notes:** | Live |
| 8. | How can tropical rainforests be managed sustainably?  (2 lessons) | Know more: How can tropical rainforests be managed sustainably?  Do more: Assess the effectiveness of management strategies in the sustainable management of tropical rainforests.  *(Selective logging and replanting, conservation and education, international agreements about the use of tropical hardwoods and debt reduction)*  Know more: Is the use of ecotourism a sustainable method to manage tropical rainforests and enhance economic development?  Do more: Evaluate how sustainable ecotourism is in managing the tropical rainforest sustainably.  Go further: | AV: FRAYER MODEL: Sustainability  Root meaning: from the Latin word ‘sustinere’ meaning to uphold. | Lesson 1:  Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Frayer model: Sustainability. Is it possible to manage the rainforest sustainably? – class discussion.  Stool of sustainability recap.  Four corners activity of management strategies – complete a fact file on each strategy by gathering information from around the room – timed exercise.  GCSE Pod – management  Checkpoint – sustainable management.  Concentration/Application: Exam practice from exampro.  Consolidation: Speed round – display image/description/key word linked to strategy and pupils need to write on the white board which management strategy it is referring too.  **Challenge:**  **Support:**  **Notes:**  Lesson 2:  Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Images of ecotourism in The Amazon – class discussion – why would people want to visit the Amazon rainforest?  What is ecotourism? Watch the YouTube clip and write a paragraph to explain ecotourism. <https://www.youtube.com/watch?v=1i4ioqIaXrE>  Benefits of ecotourism in Amazon – complete a Venn diagram to classify benefits into social, economic, and environmental.  Checkpoint – economic benefits  Concentration/Application: Exam question – exampro  Consolidation: Literacy review.  **Challenge:**  **Support:**  **Notes:** | Whole class feedback  Cross curriculum links to Science – sustainability.  9 marker - Teacher assess |
| 9. | Revision and assessment/exam practice  (2/3 lessons) | Exam practice for The Living world |  | Pupils to complete revision tasks for homework tasks. Ideas include:  Flashcards  Quiz  Posters  Knowledge organisers  Bitesize  Complete exam practice questions in lesson – feedback following lesson.  **Challenge:**  **Support:**  **Notes:** | **Teacher marked assessment Pupils green pen improvement.**  Revision |
| 10. | Do Hot desert environments have a range of distinctive characteristics?  (1 lesson) | Know more: What are the physical characteristics of a hot desert?  Do more: Explain the interdependence of climate, water, soils, plants, animals, and people in a Hot desert environment.  Go further: |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Climate graph – pupils to write 3 bullets points which describe the climate of a desert.  Stick image of desert in book.  Watch GCSE Pod on characteristics and annotate image.  Checkpoint – characteristics  Class discussion – what is interdependence?  Complete a flow diagram to show how climate, water, soils, plants, animals and people depend on one another in a Hot desert.  Checkpoint – interdependence.  Concentraion/Application: Exam practice from exampro  Consolidation: White board quiz  **Challenge:**  **Support:**  **Notes:** | Peer-assess  Cross curriculum links to Science – interdependence. Maths – interpreting graphs/charts. |
| 11. | How do plants and animals adapt to the conditions of a hot desert?  (1 lesson) | Know more: How do plants and animals adapt to the physical conditions of the Hot desert environment?  What issues arise relating to biodiversity?  Do more: Explain how plants and animals adapt to the climatic and environmental conditions of the Hot desert environment. Make connections to biodiversity.  Go further: |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: GCSE Pod - ecosystems  Peer teaching – one pupil with information on Xerophytic plants - Timed exercise - Draw image of cactus – annotate adaptations while partner draws a Camel and annotates. Peer teach the partner information – they are then to draw and annotation the opposite diagram based on what peer teaches.  Checkpoint – plant and animal adaptations.  Content: Issues relating to biodiversity - What are the challenges for plants and animals living in a hot desert? Paired discussion – share ideas.  Checkpoint – biodiversity.  Concentration/Application: Exam practice from exampro  Consolidation: Exit ticket  **Challenge:**  **Support:**  **Notes:** | Exit ticket |
| 12. | Case study  Does the development of Hot desert environments create opportunities and challenges?  (1 lesson) | **Suggested Case Study – Thar Desert**  Know more:  Does development of hot desert environments provide opportunities?  Do more: Explain how mineral extraction, energy, farming, and tourism creates opportunities in hot desert environments.  Go further: |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Locate the Thar desert. Write a short description of its location.  How can development occur in the Thar desert?  Split page into four – timed carousel to gather information on each opportunity – remind pupils this is a case study and therefore will need to include specific detail.  Checkpoint – opportunities from development.  Concentration/Application: Exam question – exampro  Consolidation: Quiz  **Challenge:**  **Support:**  **Notes:** | Exam practise questions  Cross curriculum links to Science – mineral extraction, renewable energy. |
| 13. | Case Study  Does the development of Hot desert environments create opportunities and challenges?  (1 lesson) | **Suggested Case Study – Thar Desert**  Know more:  Does development of hot desert environments provide challenges?  Do more: explain how extreme temperatures, water supply, inaccessibility cause challenges in hot desert environments.  Go further: |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Class discussion – what are the challenges of developing a hot desert – teacher to model mind map on the board.  Graph of precipitation – describe pattern and explain how can this cause challenges? Use TEA/TEE.  Read the newspaper article and answer the questions relating to challenges in developing the Thar.  Checkpoint – statements relating to challenges.  Concentration/application: Exam practice from exampro.  Consolidation: Peer-assessment.  **Challenge:**  **Support:**  **Notes:** | Self-assessment  Cross curriculum links to Maths – interpreting graphs. |
| 14. | What are the causes of desertification?  (1 lesson) | Know more: What are the causes of desertification?  Do more: Assess the physical and human causes of desertification.  (*Climate change, population growth, removal of fuel wood, overgrazing, over-cultivation, and soil erosion)*  Go further: | AV: PUSH MODEL: Desertification | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Push model: Desertification. Use of images on the PPT - Define the term desertification – pupils to write their own definition. Show actual definition and compare. Pupils to green pen if necessary. Must highlight the importance of knowing this occurs on the edges of Hot desert environments.  What are the causes? Watch GCSE Pod and complete a table of information for all causes. Green pen table.  Checkpoint – causes of desertification.  Application: Exam question – Exampro  Consolidation: Quiz  **Challenge:**  **Support:**  **Notes:** | Cross curriculum links to Science – soil erosion, climate change. |
| 15. | How can the risk of desertification be reduced?  (1 lesson) | Know more: Can the risk of desertification be reduced?  Do more: Assess the strategies used to reduce the risk of desertification.  *(Water and soil management, tree planting, and use of appropriate technology)*  Go further: |  | Connect: Connect – knowledge, skills and vocabulary retrieval.  Content: Class discussion – ideas of reducing the risk of desertification.  YouTube clip – Great Green Wall – Africa <https://www.youtube.com/watch?v=4xls7K_xFBQ>  Teacher to explain tree planting and how this can reduce the risk of desertification.  Paired discussion – what is irrigation and how can it help reduce the risk of desertification? Each pair to share one idea with the class.  Teacher to explain irrigation linking to water and soil management and link into appropriate technology.  Checkpoint – irrigation  Content: GCSE Pod – complete mind map of strategies.  Concentration/Application: Exam question – 9 mark from exampro  Consolidation: Exit ticket  **Challenge:**  **Support:**  **Notes:** | Teacher assessment of exit ticket  Cross curriculum links to Science – mitigation of climate change, soil management. |