| **Lesson:** | 4. Is Water an Infinite Resource? |
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| **Focus of the lesson:** | To identify patterns of water insecurity and consider why water is both a renewable and non-renewable resource. |
| **Prior knowledge:** | * Students will be able to build upon knowledge of water management strategies from their homework task.
* They will be able to make links to their Meteorology topic, especially in relation to global biomes and climate change
* This topic links to their Development and Superpowers unit, as students should be able to make a connection between access to water and level of development and a cycle of poverty
* The concept of water as a non-renewable resource links strongly to the topic of the water cycle, which was covered in the Year 7 Geology and Rivers unit.
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| **Learning Objectives:** | To describe the availability of water as a resource and consider how we can ensure water remains a renewable resource. |

| **Lesson Outline** | **Description** |
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| **Starter** | Task:Students will make a list of what they already know about water as a resource, including information about distribution, consumption and quality.A link to their homework about managing water resources would be expected here.Challenge:Students will be asked to link the problems they have identified to another topic they have studied. | Students will build a foundation of knowledge of issues associated with water resources here from which they can build upon throughout the lesson. Students will be able to make links to their homework and deduce problems from the solutions they have already considered.As with food security, asking students to make a link with the problems they have identified with topics they have previously learned will help to build schemas and solidify their understanding of multiple topics. The strengthening of schemas will make it easier for students to understand the topics.Repeating the explicit instruction to make cross-curricular links as a challenge task will encourage students to eventually do this without prompting. |
| **Main** | * Define renewable and non-renewable resources
* Define water security
* Where is the world’s water stored?
* Describe the global pattern of water security using PHAL.
* Quick quiz
* Design your own water management device
 | * In order to understand the concept of water currently being referred to as a non-renewable resource, students must understand the difference between renewable and non-renewable resources.
* There is an opportunity here to make a link to the water cycle, which was studied in Year 7.
* Further, the understanding of these definitions will aid students if they choose energy as their topic for their group projects next lesson.
* Water security is another key term students will refer back to throughout the lesson.
* An understanding of where the world’s water is stored will help to contextualise water security.
* Students will use PHAL to describe the global pattern of water security. This will allow students to appreciate the scale of the global issue. They will be asked to compare this map to a map of global biomes and suggest any reasons for the patterns. There is opportunity for further extension here, as students may wish to also consider food security and whether there are any links.
* A short assessment for learning task here will allow the teacher to check the students’ understanding of key terms including water security, and further encourages students to make cross-curricular links to enhance schemas.
* Students will be given an assortment of seemingly random objects to use to create a device to manage water quality in a village in a LIC. This activity introduces students to the concept of designing their own sustainable project in innovative ways. They may wish to draw upon thoughts from the decision making activity in the food security lesson to help them.
* By designing their own very small-scale project, students are now beginning to think about the resources they need, the specific issues that need addressing, and how solutions might be implemented in real life.
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| **Plenary** | What would have made your water management device better? If you had any equipment you wanted, what would you have used and why?Challenge:How do you think a device such as the one you just invented could be scaled up? | Students will now consider the shortcomings of the projects they have just designed in terms of scale, viability, and effectiveness.They will describe what they would have done without equipment constraints, which will help them to develop their ideas on a larger scale. Now students have looked at a variety of problems and solutions for various global issues and have considered implementation on both small and large scales, they are prepared to undertake their own group projects. |