

Teacher notes

Starter:

Where is the Aral Sea? Students are to discuss where the Aral Sea is. Students could come to the board to point out where it could be. Good discussion point as it is a large inland lake rather than a sea.

Main:

1. Talk through the history of the Aral Sea. Watch the BBC clip up until 2.10 minutes to help students build a picture of what happened. **Don't watch the whole clip here, as it will spoil the task at the end of the lesson.**
2. Students to complete a mapping task. Give out worksheet, students to label the countries on their worksheet. An atlas could be used to help them. Then share the answers.
3. Show the images of the differences between the Aral Sea in 1989 and 2008. Students are to describe the differences between the two images.
4. Discuss water scarcity, using notes on the slide.
5. Students to complete a categorising task separating the causes and effects of water scarcity, they should complete the key and then colour-code the statements.
6. What is the solution? Give students the solution sheet; they need to read through the four solutions, this could be completed as whole class reading. Students are then to write out a report to decide which solution would work best. Use the structure strip to help students create a structure like the decision making exercises that are faced at GCSE.
7. Watch the BBC clip from 2.10 minutes to show which solution was chosen.

Plenary:

Students are given 60 seconds to write down everything they can remember about the Aral Sea issue. They are then to share their answers with others. Students could be given a post it note to write their answers on.

Student task 1: mapping the Aral Sea

Label the map with the countries that are local to the Aral Sea. Remember to use capital letters for place names.

Can you find and label these countries and seas?

- Kazakhstan
- Kyrgyzstan
- India
- Uzbekistan
- Afghanistan
- China
- Iran
- Pakistan
- Tajikistan
- Turkmenistan
- Caspian Sea
- Azerbaijan

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Student task 2: causes and effects of water scarcity

Read through each statement and decide whether it is a cause or an effect of water scarcity. Highlight the causes in one colour and the effects in another.

Key: Cause Effect

The sea's water level has decreased by over 60%	The two rivers that fed the Aral Sea were diverted by the Soviet Union	Saltpans have been created through the loss of water	Many people have migrated because job opportunities have decreased
A large amount of water was wasted during the diversion of the rivers	Livestock have become sick as the remaining water is very salty	The Soviet Union wanted to make more money from rice and cotton	When the wind blows across the dried-up sea, it carries dust containing toxic chemicals
Less drinking water is available. It was contaminated with pesticides, bacteria and viruses	The climate near the Aral Sea has become more extreme	Quality of life has been reduced. Respiratory illnesses have increased	Poverty occurred as fishermen could no longer carry out their trade
Local people's health has been compromised due to chemical dust in the air	The Soviet Union focused on profit rather than people	Lots of dams and canals were built to divert the water	Fish stopped appearing in the Aral Sea



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Solutions to the Aral Sea problem

<p>Building a dam on the Kazakhstan side of the Aral Sea.</p> <p>Water could be diverted from the Syr Darya River to the northern section of the Aral Sea; this would increase the flow of water from the river to the sea. By increasing the flow the water level will rise. This could encourage fish back into the river and also reduce the salinity of the river.</p> <p>This is an expensive solution; it would cost over \$80 million dollars. It could also cause issues between Uzbekistan and Kazakhstan as the southern part of the Aral Sea would not be saved.</p> <p>If fish return to the river then the livelihood of the fishermen would be restored. This would also help to encourage other people back to the area as there will be drinking water, fewer dust storms and a more productive economy. Fish could also be exported which would be another source of income.</p> <p>The dam would need to be maintained and this would be expensive. If any water was to spill over the dam it would evaporate and be lost.</p>	<p>Reducing irrigation.</p> <p>Reducing irrigation could help to bring the sea back. The two rivers were originally re-routed to provide water for irrigation. If less water was being used then the rivers could be re-routed back to the Aral Sea. This would eventually help to re-fill it and reduce saline levels.</p> <p>In Uzbekistan and Turkmenistan they are reluctant to reduce irrigation as farming employs large numbers of people.</p> <p>This would be a cheaper solution to the issue being faced at the Aral Sea; however it would cause problems with other countries who may want compensation if crops and harvests fail.</p> <p>More efficient ways of irrigation could be introduced such as drip irrigation which works well in locations of water scarcity such as Burkina Faso in Africa. Drip irrigation uses far less water than traditional irrigation practices. It can also help to improve crop production. This could encourage people back to the Aral Sea if they see it as a successful farming location.</p>
<p>Moving water from the Caspian Sea to the Aral Sea through a water transfer scheme.</p> <p>Water transfer schemes have been successful in other areas of the world such as in Kielder, England. Large pipes would be built from the Caspian Sea to the Aral Sea to move water from one water body to another. The water would be moved a distance of around 506 miles and across at least two countries (depending on the route).</p> <p>This scheme would rely on the co-operation of countries in order to be built. This is a slow solution as it could take years to build the pipelines. There have also been issues with pollution in the Caspian Sea.</p> <p>The building of this water transfer scheme would create jobs and therefore help to secure the economy. This could encourage people to move back if they know that jobs are available in the maintenance of the water transfer scheme.</p>	<p>Build desalination equipment.</p> <p>The remaining water in the Aral Sea is very salty. Desalination plants could be built which would remove the salt from the water in order to produce drinking water for local people. This has been successful in parts of the UAE where water is scarce and therefore seawater has been used to create drinking water.</p> <p>The creation of the equipment would provide jobs. This could encourage people to move back to the Aral Sea, however, the initial costs would be expensive.</p> <p>Desalination could also be used to remove the salt from the soil which could encourage farmers to return as the soil will become healthier without the salt poisoning the crops.</p> <p>A large scale desalination plant could cost \$100 million and this would serve around 300000 people.</p>

<p>Introduction</p> <ul style="list-style-type: none"> • Where is the Aral Sea? • What are the issues? • What are the four solutions? 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>First Paragraph</p> <ul style="list-style-type: none"> • Which solution have you picked? • Reasons you have picked it. • Any disadvantages - how you would overcome them? 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Second Paragraph</p> <ul style="list-style-type: none"> • A solution that you haven't picked. • Reasons you haven't picked it. • Compare to the solution you did choose. 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Third Paragraph</p> <ul style="list-style-type: none"> • A solution that you haven't picked • Reasons you haven't picked it. • Compare to the solution you did choose. 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Fourth Paragraph</p> <ul style="list-style-type: none"> • A solution that you haven't picked • Reasons you haven't picked it. • Compare to the solution you did choose. 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Conclusion</p> <ul style="list-style-type: none"> • Recap on why you picked your solution. 	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>