

Murray-Darling Mystery activity

Teacher Instruction Sheet

Rationale:

This mystery activity has been developed from ideas in the book, *Thinking Through Geography*, by David Leat.

The mystery activity is designed to encourage the students to think. They have to take apparently unconnected pieces of information and fit them together to make sense of disorder. This activity should develop skills such as:

- Sorting and classifying relevant information from irrelevant information
- Interpreting information
- Making links between disparate pieces of information
- Speculating to form hypotheses
- Checking and refining
- Explaining

The main concepts addressed by mysteries are cause and effect, classification and decision making processes.

Preparation:

- Divide students into groups of about 3.
- Each group gets a copy of the statements, cut up and in an envelope.
- Each group will need to be clear about the location of Milang. An atlas will provide this information. Students should have a map. It would help if students located Milang at three different scales.
- The key question will be on each envelope.

Instructions to students:

1. Students (in groups) read the question on the envelope without opening it and are asked to make some predictions about the answer.
2. They then open the envelopes, read the statements quickly and find the locations of all places mentioned in the statements.
3. Explain that as a group they are going to use the statements to come up with an answer to the key question

Stress the following:

1. That they need to consider all the information carefully and produce an explanation, but that not all the information is relevant
2. That there may/may not be one right or wrong answer
3. They can use any other information that they have (general knowledge) to put together the most convincing explanation.
4. Explain that sorting the statements is important and will help them.
5. Explain they need to keep checking back to discarded statement to see if they can be fitted into the explanation.

Extension:

Take the list of statements and identify each one as human/natural, short term/long term, economic, environmental and so on.

MURRAY DARLING MYSTERY

Student Instruction Sheet

Why are the people of Milang (South Australia) concerned about their water supply?

Why is there poor water pressure and water quality at Milang (South Australia)?

Task 1:

You are going to be working in groups on a mystery. You will be trying to solve the above mystery.

Each group will be given an envelope and a map sheet.

Once you have read the question on the envelope and made a prediction about the answer, open the envelope and spread out the statements so that everyone can see them.

Make sure you know where Milang is located.

As a group you are going to use the statements to come up with an answer to the question.

To do this you need to do the following:

- Read and sort the statements
- Consider all the information carefully and produce a full explanation
- Consider that not all the information on the slips is relevant
- There is not a right order for the statements
- There is not one right answer
- Discuss the statements with your group
- You can use any other information that you have (general knowledge) to put together the most convincing explanation
- You need to keep checking back to the statements that you discard to see if these can be fitted into the explanation at any point.

Each group will have to report back to the class on their findings and explain why they have come up with the answer that they have. You will have to justify yourselves.

Task 2:

You are now individually going to write up your answer to the question, again explaining and justifying your reasons for the conclusion you have reached.

Statements:

1 The amount of water available for irrigation is determined by the amount of water held in storage in the MDB at any particular time and the allocation policies of each State.
2 Cubbie Station (cotton farm Southern QLD) has a licence to take 400,000 megalitres a year of water from the MDB
3 The MDB has been experiencing a prolonged period of drought for over 10 years.
4 Water from the rivers of the MDB is moved through channels and pipelines to dry areas for irrigation.
5 Water from the MDB is highly regulated and diverted.
6 The Blackthorn family of Milang turned their tap on to find their drinking water was brown and turbid (murky).
7 The MDB covers 14% of Australia's land area.
8 The amount of water available for irrigation in the MDB is limited and varies from season to season.
9 Water from the MDB is used for industry, agriculture, domestic supply, hydro-electricity generation and recreation.
10 The council of Milang has to keep repairing buildings, roads and bridges due to corrosion from salt.
11 Some groups are demanding extra water be allocated for the environment by increasing the amount of water flowing through to the mouth and improving the quality of the ecosystems.
12 A million people outside the MDB rely on it for their water resources.
13 Locks, weirs and barrages have been built to regulate the Murray River.
14 Cubbie Station is Australia's biggest cotton farm and one of the nation's biggest irrigators.
15 The MDB contains only 6% of Australia's water resources.

16 Mr Massey of Milang, got himself a glass of water but it was too salty to drink.
17 Milang is a popular tourist town with fishing, boating, bird watching and caravanning popular past times.
18 Total water requirements for irrigated agriculture have increased by 29% from 9346GL to 12,050GL since 1996.
19 Barrages at the Murray mouth leak a bit allowing some salt into the Lakes there.
20 The MDB is home to over 2 million people.
21 Victoria and NSW get more than twice the amount of diverted water than South Australia
22 Cubbie Station has dams that can store up to 500,000megalitres of water more than 40 times the storage for Goulburn.
23 The 5 Goolwa Barrages were built in the 1930s to maintain water freshness of the Murray River from its mouth to Wellington.
24 Population growth within and beyond the MDB puts pressure on water and land resources.
25 Low-flow periods are more frequent in the MDB. Less water is available to dilute the inflows of salt and nutrients. Water quality deteriorates below the weirs.
26 40% of native vegetation including 15 billion trees have been removed and replaced by crops and pasture.
27 Salt exists naturally in the MDB having been left behind by the pre-historic oceans that once covered the region.
28 Milang is a town on the shores of Lake Alexandrina South Australia.
29 Areas of irrigated cotton growing in the MDB have increased by 36% since 1996.
29 Although Milang's wetlands are seasonal they support a wide variety of plants and animals and are particularly significant as one of the destinations for the migratory Latham's Snipe, which arrive each year between August and March.
30 Most of Australia has been experiencing a severe drought since 2003.