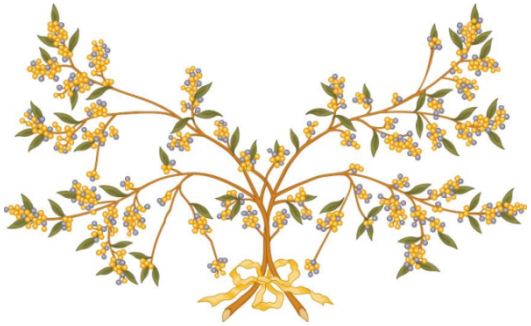
What Are Resources? – Teacher Notes

We define a resource as **'anything that is useful'**. For the following examples, write down what you think should be done and give reasons for your decision.

1. **Useful to whom? Should we only consider things resources if they are useful to humans?**



Example 1: The wattle tree in our garden is dying of old age. Some of its branches fell down during the first storm of winter. Luckily, it did not cause any damage to the house or garden. Galahs have been nesting in a hollow in the main trunk for the last four years. We can cut down the tree and replant another. That should last for another 15 years, but the galahs will lose their nests.

Does the dead tree count as a resource? Is what is left of the tree useful?

The tree could still be considered a resource for humans as source of firewood or as a place where they can observe nature (galahs nesting). Leaving dead wood can be a resource to non-humans, for example as a perch for birds, or a home for decomposers (like fungi and termites). Of course, the dead tree may fall and damage another resource such as the house. In this case, people have to decide how to best manage the resource.

How could a scientist help in solving this problem? What are your ideas for dealing with the dead tree?

A scientist could explain the interactions between the living things concerned (e.g., humans, birds, termites, etc.) and how any action may affect the balance of nature. Scientists' statements would be based on studies that have provided good data that is observable, measureable and has been repeated not on unsubstantiated personal opinions. They may contribute to finding an ethical solution such as planting another fast-growing but longer-lasting tree that would provide pleasure and shade for humans and a future home for galahs. The old dead tree may be retained for nesting or a nesting box could be provided on an alternate tree until the new tree is well grown.

2. **Useful for what? Are all users equal?**

Example 2: A piece of wetland lies at the edge of a housing estate. If the wetland were drained, this land would provide more homes for people and more jobs for builders. Currently, it is the source of a terrible mosquito problem for people in neighbouring houses. On the other hand, the wetland also provides one of the few breeding areas for endangered long-necked tortoises, and shelters winter nesting places for many water birds. The mosquitos provide food for the frogs and birds.

What Are Resources? – Teacher Notes

WASP Woodside Australian Science Project
An initiative supported by Woodside and ESWA

Should the land be drained to become a resource?

The wetland is already a resource for the tortoises, birds etc. It provides a corridor for native plants and animals to survive and travel through. Wetlands are natural drains for runoff water and can filter and aerate water before it reaches rivers or the water table. Wetlands are part of the water cycle.

If the land was drained and there was nowhere else for these creatures to move to we would loose a natural resource but gain a commercial one. This is a decision usually made by the local council after a proper scientific survey.

How could a scientist help in solving this problem? What do you think could be done with the wetland?

A scientist or scientists could explain the interactions between the living things concerned and how any action may affect the balance of nature. Their statements would be based on studies that have provided good data that is observable, measureable and has been repeated not on unsubstantiated personal opinions. They may even be employed to research and provide data on the specific resources of this area. Perhaps the tortoises could be moved to another wetland nearby, or the new housing could be designed to provide a sanctuary for the animals whilst still building more houses. Maybe the answer is that the wetland should stay, but the housing estate could build more houses elsewhere and employ mosquito mitigation strategies.

3. Useful for how long? Once a resource, always a resource?

Example 3 Chert and flint are naturally-occurring, quartz-rich minerals. They are commonly found as nodules (lumps) in chalk, limestone and greenstone. When sharply struck with another stone, the rock breaks, creating a sharp cutting edge. Chert became highly valued by early man for making stone tools with sharp edges for cutting and piercing. This advance in technology was very important because mankind could now kill and butcher their own meat, and defend themselves and their resources effectively against other animals, including other humans. This invention marked the beginning of the Stone Age. Good sources of chert were strongly defended and tools were traded across great distances. Tribal chiefs were often buried with these precious tools. The tool pictured comes from a grave in Drenthe, Holland.

Was chert considered a resource in the Stone Age?

Yes because it was used to make tools for hunting animals and cutting wood and skins.

What Are Resources? – Teacher Notes

Is chert considered to be a resource nowadays?
No. It is no longer considered to be a resource. Steel is easier to shape, lasts longer and does not need to be sharpened so often. Steel is a resource.

What do modern people use to make sharp edges for cutting tools? Iron and steel are used. Some surgeons still use obsidian, another silica rich rock, for some scalpel blades. Most however are steel. Chert is still used by some people who have a hobby of making stone tools. It can also be used as a facing feature for some buildings in Europe.

Example 4: Cladding is the material placed on the outside walls of houses to seal them from the effects of weather. Many houses that were built in Australia just after World War II were cladded with asbestos tiles and sheeting, which were popular roofing materials at the time. Previously jarrahwood was used for walls, but had by then become a scarce and expensive resource. Asbestos, however, was inexpensive, was easy to form into flat boards, was relatively easy to cut and drill and was a good insulator against summer heat. For these reasons, asbestos was a wonderful resource, and soon many people were using asbestos tiles and sheeting in their homes all across Australia. Even school laboratories and domestic kitchens had asbestos pads, which were used to insulate hot equipment. Mineral asbestos was mined at Wittenoom, Western Australia, in the Hammersley Ranges. In Wittenoom township, asbestos fibres blew around in the wind and children played amongst heaps of mining waste. By the 1960s, people were becoming worried about a deadly lung disease, which was affecting mainly asbestos miners, their families, and others who worked with asbestos. Scientific studies around the world found that loose fibres in asbestos caused scarring in lungs which eventually led to death. Workers had been bringing home fibres in their clothes, which later affected their families. The demand for asbestos plummeted, as people didn't want this health risk in their homes. In 1966, the government shut down the town of Wittenoom and even the roads to this ghost town are slowly being closed.

Why was asbestos *once* considered to be a "wonderful" resource? It was inexpensive, was easy to form into flat boards, was relatively easy to cut and drill and was a good insulator against summer heat.

Why is it no longer considered to be a resource? Asbestos fibres cause deadly lung disease. It is no longer useful.

Why do people who wish to replace their old asbestos cladding or roofs have to hire special companies trained in asbestos waste removal? These companies have special equipment, which can stop any asbestos fibres from contaminating the environment.

What Are Resources? – Teacher Notes

If you find some old broken asbestos sheeting in the garden, should you just put it quickly in the bin? No. It will contaminate the garbage. Contact your council to be advised what to do.

Why was it necessary to have scientists study the cause of the mysterious lung disease? Why didn't they just ask the miners what their opinion was? Scientists collect information/data that is observable, measurable and repeatable. They conduct fair tests. Their testing should be unbiased.