

Timescale For Renewal – Teacher Notes

When resources take longer than a human timescale to replenish they are called non-renewable. Trees can be regrown, if replanted, in about 35 years for Pine and about 100 for Jarrah. The oldest living tree on Earth is a bristlecone pine estimated to be 4,767 years old. Wind, which depends on energy from the Sun is also termed renewable because the Sun's energy will last about another 4.5 billion years. Oil and gas take many millions of years to form and are non-renewable, as is iron ore. Iron ore rich rocks were deposited under oxygen poor conditions that no longer exist on Earth.

Web search answers

The major resources on Earth are **water, air, living things, rocks (including minerals and fossil fuels), soil and energy from the Sun.**

Living things This includes things that are alive or have once lived.

1. Cotton for clothes

How long does a cotton plant take to grow? **100 days**

How many cotton plants does it take to grow enough cotton for a tee shirt?

2,000 plants produce 227kg cotton therefore 1 plant produces 0.1135kg cotton. One tee shirt requires 0.227kg cotton Answer 2 plants

Extension it also takes 25 bathtubs of water to grow the cotton

http://www.fas.usda.gov/remote/aus_sas/crop_information/crop_descriptions/as_crops.htm

Is this a renewable or non-renewable resource? **Renewable**

2. Eggs for breakfast

What is the length of a battery hen's life? **2 years**

How many eggs does the hen lay in its life? **About 600 eggs for a battery hen**

Is this a renewable or non-renewable resource? **Renewable**

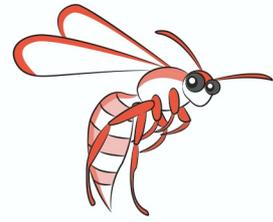
Water

1. During September 2012 Perth had 30 mm of rain when the average rainfall would have been 290mm.

Is this a renewable or non-renewable resource? **The recharge rate is half rainfall. This resource is decreasing year by year. It is not renewable within a human lifespan at present rainfall rates. Of course rainfall varies year by year.**

2. To water my vegetable patch, I am using bore water from underground. This resource was created 1.2 million years ago when rainfall was higher.

Is this a renewable resource? **If the aquifer I am drawing water from is being recharged by present rains, then it is renewable. If not then it will be exhausted and be a non-renewable resource.**



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Rocks

In Western Australia we depend on our minerals resource sector for most of our income.

1. Iron Ore Iron ore is found in the Pilbara in the “Banded Iron Formation”. These deposits were formed when oxygen levels in the atmosphere were very low (less than 2%)

How old are these deposits About 2,500 million years

How much oxygen is there in today’s atmosphere? About 21%

Is iron ore a renewable resource? Explain your answer. It is not renewable as the conditions for it to be formed no longer occur. Iron ore rich rocks were deposited when there was about 2% oxygen in Earth’s atmosphere. Later enrichment took place when the rocks were weathered to enrich the iron content.

2. Gold Gold has always been a major contributor to our economy. Workers in the “Super Pit” in Kalgoorlie dig out this resource.

How old is the gold mineralisation? About 2,670 million years

If there is no more mineralisation, is gold a renewable or non renewable resource? Non renewable

Energy from the Sun

Our Sun is a giant thermo-nuclear reactor. Plants use its energy to produce food for both themselves and for us.

Is energy from the Sun renewable or non-renewable? \ renewable

Students may wish to visit

<http://www.epa.vic.gov.au/ecologicalfootprint/calculators/personal/results.asp> to estimate their own use of resources