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TALK

SUSTAINABLE ENERGY

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**Discussion Cards To Build Language Skills
And Environmental Awareness**



SUSTAINABLE ENERGY



ECOTalk cards contain images, information and activities to increase awareness of global and environmental issues for students working in a cross-curricular context. The focus on discussion at small group work as well as whole class level, using the CD-ROM supplied in this pack to facilitate projection onto a whiteboard.

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Acknowledgements

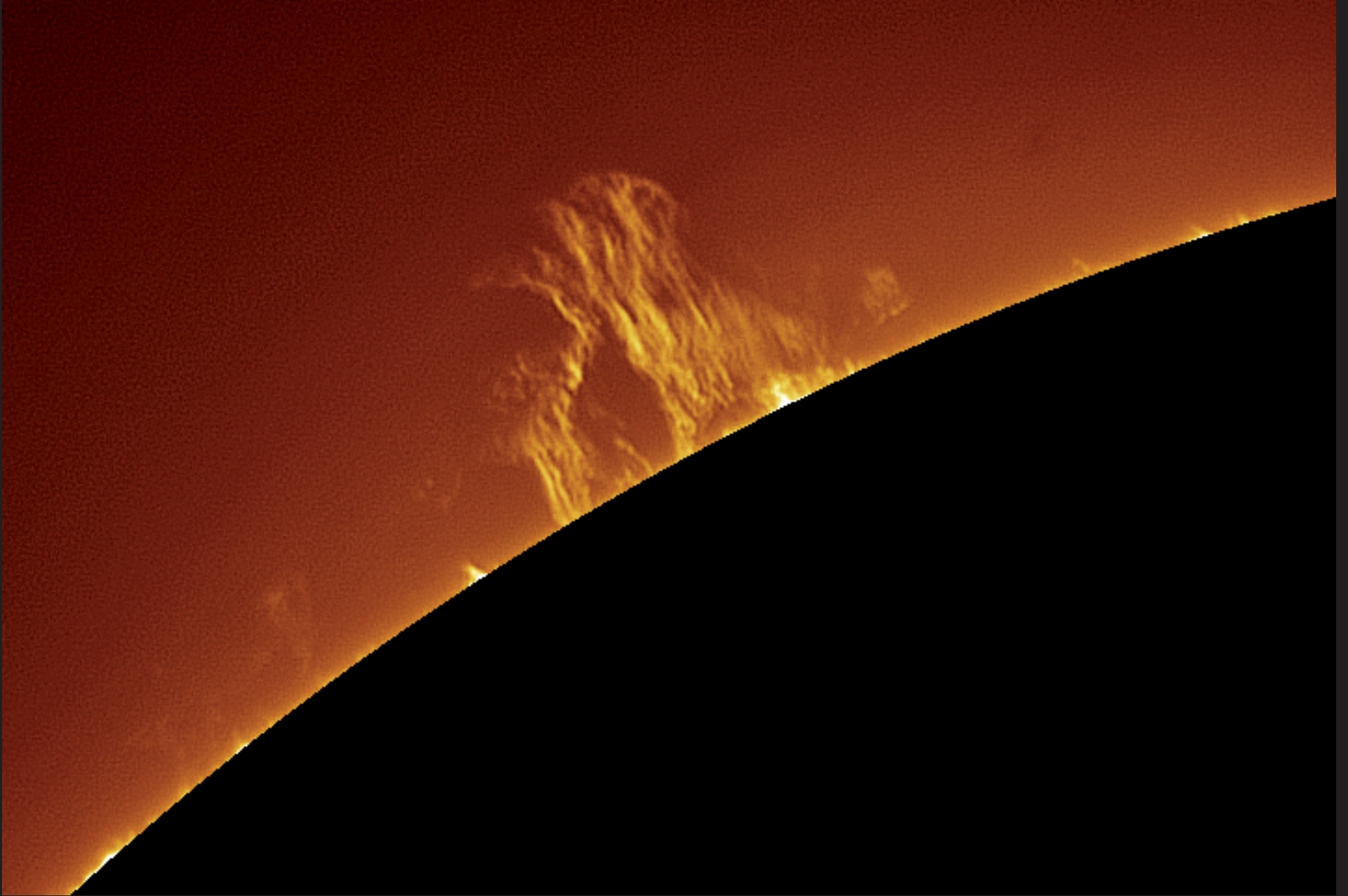
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What's the issue?

- To understand that energy comes from using power stored in fossil fuels such as wood, coal, oil and natural gas, or comes from active sources such as water, wind, sea and the sun.
- To understand that some sources of energy are finite, but others such as water, wind, sea and the sun are renewable and will last for ever.

What you need to know ...

Almost all energy, ultimately, comes from the sun. Solar energy is direct from the sun. Fossil fuels such as oil, gas and coal come from decayed plant matter which grew originally because of sunlight.

Hydro power depends on the sun's energy to drive the water cycle. In most cases we are using energy from the sun which has become stored in another form. So by burning oil we are using up solar energy which shone on the earth over 250 million years ago.

Let's talk about it ...

- Look at the picture. Where does energy come from originally?
- How does such energy find its way into coal and oil? How were they made?
- Why is such energy in wood that we burn?
- What is a 'greenhouse gas'? How do these play an important part in keeping the earth warm?
- What will happen to the ice in the Arctic if global warming increases?
- What will happen to the seas and the climate?

Now try this ...

1. Imagine a ray of light from the sun. Tell the story in comic strip form of the journey from the sun, reaching the earth's surface and either being directly used by solar cells or being converted by a plant into stored energy to be eventually made into oil and then used in a vehicle.
2. Investigate the energy we receive from the sun. Measure the temperature simultaneously in the shade and in direct sunlight. Do the same for a jar of water and plot the temperature for each jar.



What's the issue?

- Sustainable energy is renewable energy: it will never run out.
- 'Renewable' is not a simple term. Some people think that gas is renewable because every time they want more they just turn on a tap.
- Finite energy sources will run out one day. For some energy sources such as oil and natural gas, that could effectively be in our life time.

What you need to know ...

The sun is the ultimate source of all our energy, although the process of converting and storing and releasing that energy into a fuel we recognise and can use is very complex for most people.

Wind generated energy is a good way of supplying energy to remote places and the land beneath windmills can still be used for farming. Newer wind farms are often found offshore. The use of wind to generate power produces no waste or greenhouse gas.

Let's talk about it ...

- The picture shows one form of sustainable energy and one form using 'non-renewable' sources. Identify them and say how each is creating power.
- What are the advantages and disadvantages of each in creating power?
- Which other forms of energy are 'sustainable'?
- Why are these not available to every country?
- What can be done to ensure that energy becomes more 'sustainable' in the future?

Now try this ...

1. Develop as a whole class on the whiteboard a backwards-developed flow chart. Start with the drawing of a petrol (gas) pump. Ask "So, where did the petrol/gas come from?". Then draw the oil refinery. Keep asking "So where did the _____ come from?" until you reach the crude oil underground. Then point out that it took 250 million years to create, but will all be used up in 100 years to show how finite it is.