



Name

Class

Student Worksheet

Thought-starter: Where does your energy come from?

What is Liveability?

You will now be watching a clip about liveability and using the following questions to guide an analysis of this clip. Record your thoughts in response to each question:

1. What points does Herbert raise about the physical aspects of a city?

2. What points does Herbert raise about the social components of a city?

3. What does Herbert say about the cultural aspects of a place?

4. What are the 'ingredients' for a liveable city?

Exploring Liveability and our Environment Through Energy

1. You will now be investigating how energy - one of the physical factors of liveability included in the clip you watched earlier - affects our environment.

First, consider the following:

From the time of the Industrial Revolution, most energy generation relied on fossil fuels (fossil fuels are natural fuels that were formed in the geological past from the remains of living organisms). The role that energy generation from fossil fuels has played in our modern lives should not be understated; almost all of the things we do and use have their roots in energy sourced from fossil fuels. The problem is, burning fossil fuels to power our modern lives has a range of environmental impacts.

2. You will now work in pairs or small groups to undertake research to find out the following (record your answers below): Two different types of fossil fuel

1.

2.

At least one environmental impacts for each fossil fuel, either in sourcing the fuel, transportation or energy production:

1.

2.

One way each of the environmental impacts may affect liveability:

1.

Improving our Environment and Liveability Through our Energy Choices

1. You will now watch a clip from the 2040 documentary about decentralised energy and participate in a guided discussion around this clip. The community presented in this clip is from Bangladesh, a country of around 160 million people, 70 million of whom do not have access to grid electricity with another 60 million having unreliable grid connections ([Lighting Global](#)).

NOTE: This clip deals with the topic of solar energy; if you are unfamiliar with solar energy you could read through the following information before watching the clip:

Solar is the Latin word for 'sun', so when we talk about solar energy, we are talking about the energy that comes from the sun. We already use the energy from the sun for light and warmth – in fact, without the sun the earth would be completely dark, freezing and lifeless.

But we can also use photovoltaic (PV) cells to capture the sun's energy and convert it into electricity. Photovoltaic cells are found in solar panels. The sun shines onto the solar panel, and the photovoltaic cells generate "DC" (Direct Current) electricity. This electricity is then fed into a solar inverter that converts into "AC" (Alternating Current) electricity. You can then use the AC electricity is used to power appliances in your home or school. Any power that is 'left over' gets directed into the mains power grid for others to use.

The best part about solar energy is that it creates almost no pollution (some pollution may be generated in building and transporting the solar panels). And because the sun's energy is totally renewable it will never run out (well, it will in around 4 billion years but that means we've got a bit of time to prepare). On top of that, the Earth receives more energy from the sun in an hour than is used in the entire world in one year.

2. Working in pairs or small groups you now need to compare solar power with coal power according to a range of different factors (liveability, sustainability, accessibility, and cost). Use the table below to record your assessment on the following table, rating each factor for each energy type out of 10 (with 1 being 'poor' and 10 being 'excellent'). You should also add notes to each point to justify the rating given.

NOTE: An extra row has been provided in this table to allow you to add your own factor if you have one.

Factor	Solar	Coal
Liveability		
Sustainability		
Accessibility		
Cost		
Your choice...		

3. Once complete your group needs to create a report that summarises the results of your assessment. Reports need to include supporting images - remember that online images are often subject to copyright. Instead, you could use images from the [Cool Australia Digital Library](#), or you can take your own photos or create your own graphics.

Your report should follow this structure:

- Introduction – What are you investigating and describing in this report?
- Key terms – What is meant by the key terms you use in this report (e.g. liveability, energy, energy choices, sustainability etc.)?
- Body of the report – Present the details of your assessment and justify your ratings.
- Conclusion – Summarise key points and recommendations.

Be prepared to share your report with your peers.

Reflection

Work independently to think about liveability and our energy choices and complete the following sentences:

I used to think...

But now I think...

These lessons have been created in partnership with
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