Should we ban fracking?

Teacher's notes

Level: Intermediate upwards

Timing: 90 minutes plus

Material needed: One copy of the student worksheet, Part A or B of the article and Vocabulary record per student

Group size: Any

Overview

This lesson plan for both pre-experience and in-work business students is based around an original article first published in *Business Spotlight* Issue 1/2014. Two US-based experts give their personal and professional opinions about whether fracking should be banned.

The tasks in the student worksheets will help the students to learn and use new business vocabulary and related functional language. The students will also practise useful business skills such as explaining and concept-checking as well as making and justifying decisions.

The teacher's notes provide suggestions for teaching and learning strategies as well as ideas on how to present the tasks in the classroom, any necessary answer keys and extension tasks (for in class or as homework).

Lead-in

Students complete the sentence in their own words. Encourage them to make their sentences fairly detailed instead of just completing them by adding one or two words.

When they have done this, they should compare and discuss what they have written. How many of the sentences are descriptive and factual and how many are more emotional and opinionated?

Key words

Before reading the articles, the students should work together to match the words and expressions from both articles A and B with the definitions. Then, assign each student article A or B and get them to find the words by reading their article. Ask whether they want to change their minds about any of the definitions now that they've read the words in the context of an article. Check the answers as a class.

Key:
Article A
1. contamination; 2. leakage; 3. yields; 4. the go-ahead; 6. solvents; 7. fractures; 8. energy-exporting nation; 9. emissions; 10. untapped
Article B
1. fossil fuel; 2. zero credibility; 3. controversial; 4. deny; 5. obfuscates; 6. offshore; 7. integrity; 8. wellbore; 9. boom; 10. regulated

The arguments

A three-part task in which students first write the main arguments from their half of the article and then get information from another student who looked at the other half of the article in order to complete the table. When the table contains as much information as possible the students should try to look at it objectively and decide who makes the best argument.

Key: (possible answers)

For fracking	*Against fracking*
Fewer than 1% of wells in the US have showed signs of leaks. *It decreases the dependency on oil and gas producing and exporting countries.* *Any excess can be exported for profit.* *It's cheap.* *The environmental knock-on effect shows that the switch to natural gas has reduced greenhouse gas emissions.*	*Long-term effects are unknown.* *Past experience shows that the promises made by companies involved cannot be trusted.* *They ignore the fact that the groundwater level has to be drilled through.* *The public authorities have been overwhelmed by the fracking boom and have not been able to regulate it.* *Possible negative effects have been poorly monitored.* *There is no short-term financial gain.* *Shale gas causes 'major environmental damage'.*

Describing a process and checking for understanding

A two-part task in which students who read Article A explain the process of fracking to students who

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read Article B (the process is explained in the third paragraph of Article A). Then, students who have had the process explained to them should check that they have understood by using the language structures provided.

Decisions and discussions

Working first on their own, students should decide which of the options they prefer and write their reasons for the decision. When they are finished, discuss the decisions and reasons as a class.

Extension activity: You can extend this into a 'meeting of local authorities'. Collect all of the students' choices and reasons, and discuss them in a formal meeting scenario which includes an agenda, the minutes, an opening statement and a final conclusion.

Teaching and learning strategy: Getting more out of tasks

Sometimes you might read a lesson plan and think to yourself that there is potential for getting much more out of the tasks. If this happens, you are probably right. Just because there are no further tasks, does not mean that there cannot be.

In some cases you may feel that some topics do not need to be discussed further or that the language involved need not be expanded. Other topics like this one will lend themselves naturally to further practice and exploitation. The meeting idea, which can be used to extend task 5, is just one of many ideas that readily springboards off this kind of topic. Other possible extension tasks could be looking at the language fields of energy sources (especially renewable ones), pollution or risk. You might want students to research a related topic such as accidents in the energy industry or disasters caused by leaks and spills (of which there are many reports to be found). If your students are financially-inclined, you might want to look at costs, savings and utility prices, and if they have a legal or insurance background, you could discuss the legal consequences of possible accidents.

Extensions, expansions and spin-off lessons are restricted only by the time you have available.

Webquest

Students conduct research to find out more about things mentioned in the article. They can then explain and discuss their findings in class. This task can be set as homework and discussed in the following lesson.

Vocabulary record

Here, students should be encouraged to record all of the new and useful vocabulary they have learned during the lesson, not only in the form presented in the article but also in related forms.

Related topics on onestopenglish

For follow-up lessons on related topics go to the following lesson plans and articles on onestopenglish:

Macmillan Dictionary *BuzzWord*: new words in 2013:
http://www.onestopenglish.com/skills/vocabulary/macmillan-english-dictionary-resources/macmillan-dictionary-buzzword-new-words-in-2013/553245.article

You may also find topical and relevant *Guardian* news lessons here on onestopenglish:
http://www.onestopenglish.com/skills/news-lessons/weekly-topical-news-lessons/2013-weekly-news-lesson-archive/weekly-news-lesson-321-17th-january-2013-coal-to-challenge-oils-dominance-by-2017/552527.article

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Worksheet

1 Lead-in

Complete the sentence:

Fracking is _____

_____

_____

2 Key words

Match the words to their meanings and find them in the article to read them in context.

Article A

drill	untapped	yields	solvents	contamination	the go-ahead
emissions	leakage	fractures	energy-exporting nation		

1. the process of making something dirty, polluted or poisonous by adding waste, a chemical or infection _____
2. the process of oil, water or something similar escaping through a hole or crack _____
3. amounts of something that are produced or obtained _____
4. to get permission to do something _____
5. a tool used for making a hole in something _____
6. liquids used for dissolving solid substances _____
7. breaks or cracks in a very hard substance _____
8. a country that sells sources of power to other countries _____
9. substances, especially gases, that go into the air' _____
10. not being used yet, but existing in large amounts that could bring profits or benefits _____

Article B

boom	deny	obfuscates	zero credibility	integrity
wellbore	controversial	regulated	fossil fuel	offshore

1. a source of energy made from decayed material from animals or plants that lived many thousands of years ago _____
2. to have no qualities that make people believe in or trust you _____
3. a subject, opinion or decision that people disagree about or do not approve of _____
4. to say that you did not do something that someone has accused you of doing _____
5. deliberately makes something confusing or difficult to understand _____
6. in the sea, not on the land _____
7. the quality of being in a good condition, without any damage or mistakes _____
8. a hole drilled into the ground to extract something _____
9. an increase in the activity of a particular industry _____
10. controlled an activity, process or industry officially by using rules _____

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Worksheet

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Article A

NO!

"Yields increase with each frack and so does safety"
JOEL KURTZMAN

1 If done incorrectly, hydraulic fracturing, or 'fracking', can be dangerous. It's been linked to earthquakes and groundwater contamination. Even so, a study of 20,000 wells in the US by scientists at the Massachusetts Institute of Technology found that 1% or fewer showed signs of leakage.

2 Controversy about fracking technology is to be expected. Although its roots go far back, it is still a relatively young technology and continues to develop. Yields increase with each 'frack' — and so does safety. In the US, a number of states have examined the risks of fracking. So far, each state that has done so, has given it the go-ahead.

3 The technology is complex. A hole is drilled two kilometres deep or more, well below groundwater level. Then, the drill turns sideways and drills horizontally for another five to 15 kilometres. Next, the holes are lined with steel and concrete, and holes are blasted in the horizontal sections. A mixture of water and sand, along with some solvents, is forced into these horizontal holes under intense pressure. This fractures, or 'fracks', the rock, freeing the natural gas and oil trapped there. Thousands of wells are fracked each year, almost all without problems.

4 The results of fracking have been fantastic. Studies, including those by the Energy Information Administration, show the US will soon be energy independent as a result of fracking for oil and natural gas. Other studies suggest we will become a net energy-exporting nation in the 2020s. Only a decade ago, Americans were building terminals to import liquefied natural gas from the Middle East. While the rest of the world — especially Europe — becomes more dependent on Russia, the Middle East and the rest of OPEC for its energy sources, America is breaking free. The NAFTA countries (Canada, the US and Mexico) no longer worry about having enough energy to move their economies forward. Rather, the concern is having enough space to store what's coming out of the ground.

5 Even more important, as a result of fracking, natural gas in the US is cheap — one-third to one-quarter the cost of natural gas in Europe. That fall in price has made it practical for electric utilities to switch from coal, and, in some cases, from nuclear energy, to natural gas. The results have been significant. Though the US has not signed the Kyoto Protocol, its greenhouse gas emissions have fallen to 1993 levels — very close to Kyoto's goals.

6 Natural gas is everywhere: in North America, Europe and some parts of Asia. The only way to get at it, however, is through fracking.

7 Fracking comes with risks. Most energy sources do. But instead of leaving its large reserves of energy untapped, European companies, universities and research institutions should work to accurately measure and then lower the risks associated with fracking. Rather than condemning this new technology, as most European countries have done, why not contribute to perfecting it?

JOEL KURTZMAN is a senior fellow at the Milken Institute, a US economic think tank based in Santa Monica, California, and the Wharton School of the University of Pennsylvania.

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Worksheet

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Article B

YES!

"We are still learning about the effects of fracturing"
GEERT DE COCK

1 Hydraulic fracturing creates many economic, environmental and public-health problems, threatening the long-term health of our planet and communities. To protect ourselves and our essential resources, we must ban fracking.

2 As with deep-sea oil drilling, oil and gas companies claim that their operations are safe and pose minimal environmental risks. However, such promises have proven false time and again. The fossil fuel sector has zero credibility when it comes to adequately informing the public about the risks involved in their operations.

3 One of the most controversial aspects of hydraulic fracturing is its effect on groundwater quality. The oil and gas industries continue to deny the connection between fracking and groundwater contamination. By emphasizing the point that the fracked rocks are situated two to three kilometres underground, the industry obfuscates a key point: to access shale formations, the wellbore must pass through the overlying formations, where groundwater is present.

4 Scientific and industry publications have shown that integrity problems in wells are very common in the oil and gas industry. Up to 45% of offshore wells experience integrity problems, where gas and fracking fluids can migrate outside the wellbore. Yet, you will never hear such statistics on these risks from the industry.

5 We are still learning the full extent of the environmental and health effects of fracking. Unconventional oil and gas extraction took everyone by surprise, even the major oil and gas companies. Moreover, public authorities have been overwhelmed by the fracking boom. This, in addition to fracking being exempted from key US federal regulations, has led to a situation in which the negative effects of the 'shale revolution' have been poorly monitored.

6 Ignoring the environmental dimension, what could be the economic effects of shale gas in Europe? Because of the thousands of wells needed, shale gas will not make a significant contribution to Europe's energy mix before 2030. It is not a short-term solution. The limited size of the shale resource in the EU means it will not decrease gas prices, nor significantly reduce Europe's import dependency.

7 Shale gas offers limited economic benefits, while causing major environmental damage. Fracking cannot be safely regulated. The EU as a whole should take inspiration from France and Bulgaria — as well as the 350 US communities that have stopped fracking — and ban it altogether.

GEERT DE COCK is a policy officer with Food & Water Europe, the European section of Food & Water Watch, which is based in Washington, D.C. The organization's focus is to protect food and water from coming under corporate control.

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3 The arguments

a. Write the main arguments from your article (A or B) into the table.

b. Talk to another student who read the other part of the article. Complete the other half of the table with information provided by your partner.

c. With your partner, decide which article makes the strongest argument – the article *for* fracking or the article *against* it.

For fracking	*Against* fracking

4 Describing a process and checking for understanding

Student A
Explain the process of fracking to Student B.

Student B
Listen to Student A and check that you understand the process of fracking by using the following language:

So, what you're saying is ...
If I understand you correctly, ...

5 Decisions and discussions

Your local authorities want to know how you feel about sources of energy. They ask you to choose which one of the following options you would prefer, giving reasons for your decision.

I would prefer:

- ☐ a. fracking under and near the town to provide a source of local energy
- ☐ b. a clean and modern nuclear power plant to be built outside of the town
- ☐ c. 20 wind turbines to be erected in fields on the edge of the town
- ☐ d. to continue to import oil and gas but to have no control over future prices and supply
- ☐ e. other (please state) _____

beause_____
_____
_____
_____

6 Webquest

Article A mentions OPEC, NAFTA and the Kyoto Protocol. Research these on the internet and explain what they are.

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Vocabulary record: Should we ban fracking?

verb	noun	adjective (+ opposite)	adverb (+ opposite)
drill			
	safety		
		environmental	
			accurately