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**Argument From Evidence**

**Assessing key points of argumentation using hydraulic fracturing**

**I. Background**

 Hydraulic fracturing, otherwise known as “**fracking**” is an extraction technology that increases recoverability of traditional oil and gas reserves. Fracking wells are drilled 1-2 miles beneath the surface and then another 1-2 miles horizontally at the depth of the shale formation. Proprietary chemicals, sand, and water are pumped down the concrete-lined wells at high pressure to fracture the shale and release excess hydrocarbons (oil and gas) which are then pumped up to the surface. The release of these chemicals into the groundwater as well as the excess gas and contaminated surface water released from pumping pose serious **environmental impacts** and human health impacts.

The use of fracking is increasing throughout the United States in places like North Dakota, Pennsylvania, and Texas. Boomtowns in these states have emerged with increased job opportunities, however many of these small towns cannot handle the sudden population growth and are faced with long-term **economic impacts** such as higher crime rates, insufficient social services, and a push out of existing livelihoods like farming and ranching. Fracking has been used to increase extractive recoverability in existing California oil and gas wells for over 50 years but only recently have proposals been put forth to develop new well fields from the Monterey shale basin, stretching from Los Angeles to Monterey and throughout the Central Valley. Extractive development like fracking highlights competing facts about the environment between different **stakeholders** among community, government and corporate interests.

**II. Keywords and Notes**

Complete while actively listening during lecture.

* **“Fracking” (Hydraulic Fracturing):** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* **Environmental Impacts**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Economic Impacts:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Stakeholders**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**III. Individual Inquiry**

1. Students will individually research facts about fracking based on their assigned role.
2. **Predict.** What side (pro-environment or pro-economy) do you think a person in your assigned role will take on the fracking issue? How do you think your role (government, community, and corporation) informs this opinion? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **Research.** Use *one* of the following websites to support your prediction with facts (pro-economy or pro-environment) from your assigned government, community or corporate role.

Government: [www.cafrackfacts.org/resources/fact-sheets/](http://www.cafrackfacts.org/resources/fact-sheets/)

Community: [www.protectsanbenito.org/get-informed.html](http://www.protectsanbenito.org/get-informed.html)

Corporate-funded: [www.sanbenitounited.com/facts](http://www.sanbenitounited.com/facts)

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**IV. Group Stakeholder Debate**

1. **Communicate.** You will be asked to know the facts of the stakeholder group you are role playing. The perspectives of the different stakeholders will be represented by three pro-environment (one student from each group) and three pro-economy (one student from each group) representatives who will carry out the debate. Other students may raise their hand to state further facts, support claims and trade spots with the student representing their group.
2. **Record.** Use the Venn diagram on the next page to record the facts from each stakeholder group, including the areas where groups agree. Be sure to think about whether these facts are pro-economy or pro-environment.

**Community**

**Government**

**Corporation**

**V. Reflection**

1. Which group was the most pro-environment? Which was the most pro-economy?

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2. What were some facts voiced during the debate that surprised you?

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3. What group do you personally agree with and why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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