

## EXPERIENCE THE ENERGY

### For Students

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#### Instructions:

Using the [Experience the Energy](#) 360° videos and your own research, answer the questions below. Keep in mind that some answers will be found in the videos and the video descriptions, and others will require you to do your own internet research. The videos are 360°, use your mouse and 'drag' to look around!

#### Questions:

#### Watch the [Automated Drilling](#) videos

- 1) **Automated drilling** uses more technology and requires fewer workers than conventional drilling.
  - a) What is the name of the room where the driller operates the drill controls using computer systems?
  - b) What warns the workers that something in the drill needs to be addressed? (*hint: watch the second Automated Drilling video until the end!*)

#### Watch the [Conventional Drilling](#) videos

- 2) **Conventional drilling** operations use many workers to extract bitumen from deep in the ground.
  - a) One substance used, called drilling \_\_\_\_\_ can be composed of clay, water, chemicals or other liquids, and helps to lubricate and cool the drill bit.
  - b) Go to the **drilling floor**. Look up at the Derrickhand who is climbing the ladder adjacent to the drill. What are two other job titles at a conventional drilling site?

#### Watch the [Mining](#) videos

- 3) **Mining** involves using large machinery and haul trucks to dig for and extract crude oil.
  - a) What percentage of the oil sands are close enough to the surface to be mined?
  - b) What type of crude oil is mined from the oil sands in Alberta?

Watch the [SAG-D](#) videos

- 4) **SAG-D** is a method of drilling for bitumen that uses water and natural gas to liquify bitumen so it can be brought to the surface.
- What does SAG-D stand for?
  - Bitumen is buried deep underground and is difficult to extract because it is very...
    - hard
    - gaseous
    - runny

Watch the [Processing Plant](#) videos

- 5) Oil and natural gas are converted to useful products at the **processing plant**.
- What useful, marketable products is raw natural gas is converted to at the processing plant?
  - What structures are used to transport natural gas from the well to the processing plant, and again from the processing plant throughout the country?

Watch the [Liquids Pipeline](#) videos

- 6) After bitumen is extracted through mining or drilling, It will be transported using a **liquids pipeline**.
- Name three safety items that the worker is wearing.
  - How long does it take for liquids to travel from Alberta to Southern Ontario? (Hint: explore this [About Pipelines](#) resource)

Watch the [Natural Gas Pipeline](#) videos

- 7) A **natural gas pipeline** transports natural gas from the processing plant to homes, offices, and other consumer sites.
- List three ways natural gas is used in homes or at school.
  - What mechanical object travels through the pipeline to determine the condition of the pipe? (Hint: it's named after a farm animal!).