

Hands-On Permeation

Name _____

Phenomenon: Trapped!

After experiencing the phenomenon, record three observations about what occurred.	
Draw or explain what you think is causing this phenomenon.	
Ask three questions about what is causing the phenomenon.	

Permeation Experiment

Research Question	How does grain size affect how quickly a liquid can move through rock?
Hypothesis	
Independent Variable	
Dependent Variable	
Control Test	
Supplies	
Procedures	

Data	<table border="1"> <tr> <td data-bbox="509 241 805 306"></td> <td data-bbox="810 241 1096 306"></td> <td data-bbox="1101 241 1386 306"></td> </tr> <tr> <td data-bbox="509 312 805 378"></td> <td data-bbox="810 312 1096 378"></td> <td data-bbox="1101 312 1386 378"></td> </tr> <tr> <td data-bbox="509 384 805 449"></td> <td data-bbox="810 384 1096 449"></td> <td data-bbox="1101 384 1386 449"></td> </tr> </table>									
Analysis Summarize the results of your experiment. Use graphs or drawings to illustrate your analysis.										
Conclusion Write a statement that explains why liquids move through some rock types faster than others. Use data from your experiment to support your statement.										

Exploring the phenomenon

How do the results of your experiment help explain what was happening in the phenomenon?
What questions do we still need to answer?

Increasing permeability of rock - Fracking

Use the resources you have been provided to obtain information about the fracking process.

What is fracking?		
How is fracking different from conventional oil drilling?		
Describe why the fracking process is used.		
In the space below, describe what steps are involved in drilling a well and fracturing the rock to release more oil and gas.	In the space below, draw a fracking well. Include the following parts: drill hole, steel casing, concrete sleeve, oil-bearing rock layer. Label each part and include a description of the function of each part.	

Fracking Experiment

Research Question	What properties of fluids are useful for fracking?	
Fluid used:		
Explain what properties this fluid has that will make it useful for fracking.		
Prediction: Draw what you think will happen when you inject the fluid into the rock (gelatin).	Front view	Side view
Draw what happened.	Front View	Side View

<p>What part of a fracking well does the straw represent?</p>	
<p>What part of the well does the tubing represent?</p>	
<p>Compare your results with the results obtained by groups who used a different fluid.</p>	

Fracking: Mitigating the Effects

<p>Research Question: Write a research question about the effects fracking can have on social, environmental, or economic factors in Utah.</p>	
<p>Obtain information: Use the internet to obtain information to answer this question. Record what you find here.</p>	
<p>Propose a solution Use the internet to help you propose a solution that will mitigate the effects of any problems with fracking that you found in your research.</p>	

Explaining the Phenomenon: Trapped!

Using what you have learned, explain the phenomenon. Include the answers to the questions you asked at the beginning of this unit.