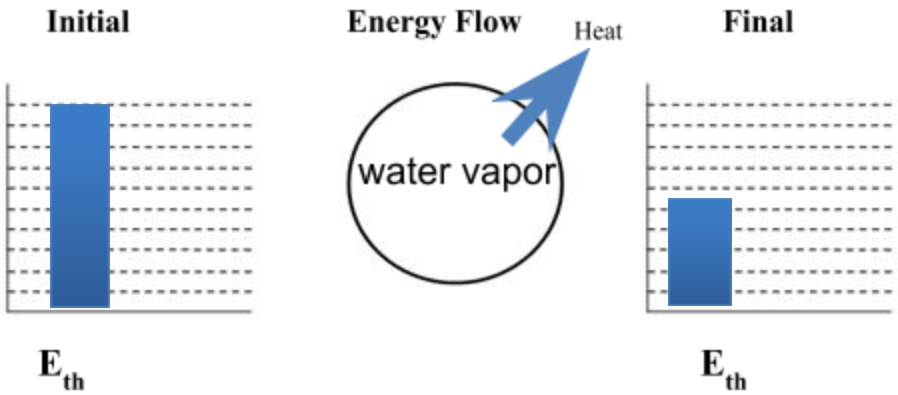
Name_____ Core _____ Date _____

4.1 Act 3 Rock Cycle Energy Bar Charts

Directions: For each of the situations described below, use an energy bar chart to represent how energy is stored and transferred in portions of the rock cycle. Also include a brief description about how the energy flows.

Use this example below abouat the water cycle to help you.

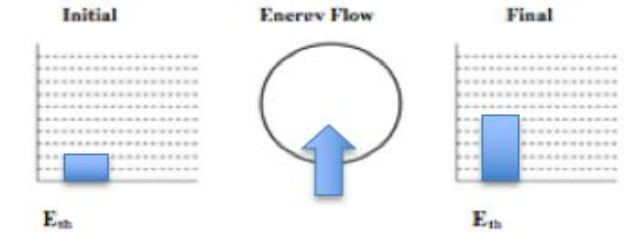
Sample: Water vapor is condensing into clouds.



Explanation

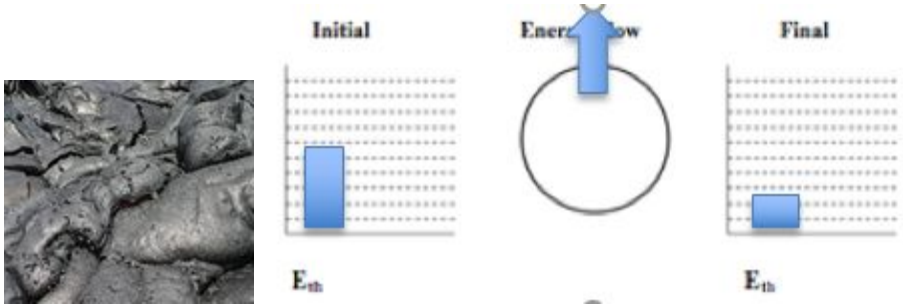
Water vapor has greater thermal energy than liquid water. Which is why gaseous phase energy bar is represented as greater than liquid's phase energy bar. An arrow is pointing out of the circle to show energy is leaving the system (heat is another word for transfer of thermal energy – we commonly refer to this as heating or cooling.

1.) Sedimentary Rock is melted by Magma



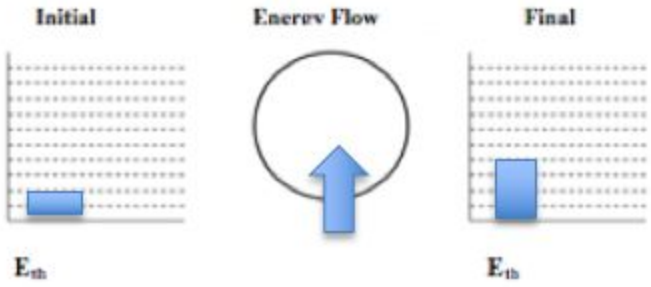
Explanation: ***Energy is being transferred into (heating) the system, which is causing the sedimentary rock to melt into liquid rock (magma).***

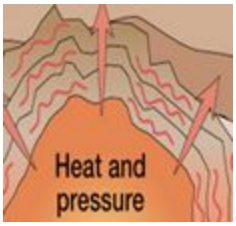
2.) Lava cools into solid igneous rock.



Explanation: ***Energy is being transferred out of the system (cooling), which is causing the liquid rock (lava) freeze into solid igneous rock.***

3.) Sedimentary Rock is exposed to heat and pressure and it partially melts.





Explanation: Energy is being transferred into the system, which is causing the sedimentary rock to partially melt.

4. Hutton, an early earth scientist, first thought of the rock cycle as a process driven by Earth's internal heat engine. Do you **agree** or **disagree**? Was he on the right track? **Explain** your thoughts.

Many people will agree that Hutton was on the right track because Earth heats rocks, which cause them, melt. Ingneous and Metamorphic rock need the heat from the inner earth to form. Without the heat there would be no cycle.