

# Components of Activity

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## Earth 28& Earth 29

**WHAT THIS ACTIVITY IS ABOUT:** This activity is about cross-cutting concepts in science.

*Crosscutting Concepts represent common themes that span across science disciplines. These concepts identify universal properties and processes found in all the science disciplines.*

### **INSTRUCTIONS:**

**1. Briefly scan through each paragraph before starting.**

**2. Carefully read the 1<sup>st</sup> paragraph. Underline and/or circle key ideas and words.**

*Circle either YES or NO for each of the cross-cutting concepts on that page that apply.*

**3. Carefully read the 2<sup>nd</sup> paragraph. Underline and/or circle key ideas and words.**

*Circle either YES or NO for each of the cross-cutting concepts on that page that apply*

**4. Return to the 1<sup>st</sup> paragraph. Write a brief response for each cross cutting concept marked YES.**

*At bottom of page, circle the number of the cross-cutting concept which BEST fits the paragraph.*

**5. Return to the 2<sup>nd</sup> paragraph. Write a brief response for each cross cutting concept marked YES.**

*At bottom of page, circle the number of the cross-cutting concept which BEST fits the paragraph.*

**6. At the bottom of each page, describe WHY you selected that cross-cutting concept as the BEST fit.**

**7. Complete a VENN diagram on the back page for the two topic paragraphs.**

**8. Write a 50 word essay. Summarizing your discoveries, ideas, and conclusions about the paragraphs.**

## Earth 28 Hydrocarbons and Energy

The expression hydrocarbon is equal to the expression “fossil fuel resources.” Hydrocarbons include natural gas, crude oil, and coal. Most hydrocarbons found on Earth naturally occur in crude oil, where decomposed organic matter provides an abundance of carbon and hydrogen which, when bonded, can catenate to form seemingly limitless chains. In practice, crude oil is sent through a catalytic cracking process – where chemical oil refineries break-apart “big molecules” found in crude oil to make smaller molecules needed for fuel, such as gasoline. Natural gas and coal are used as fuel to generate heat. That heat boils water. Steam from boiled water turns the turbine of large electric generators – generating electric power for the utility grid. (topic) Does this paragraph mention, describe, imply, refer to, or convey:

1. (YES) (NO) any **patterns?**  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

2. (YES) (NO) any **cause and effect?**  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

3. (YES) (NO) a **quantity, numeric scale, or proportion?**  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

4. (YES) (NO) a **system, or organized structure?**  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

5. (YES) (NO) about **energy or matter?** (*Especially flows, cycles, and conservation*)?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

6. (YES) (NO) the **structure or function** of something?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

7. (YES) (NO) concepts of **stability and/or change?**  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

Circle the number which BEST represents the paragraph? (1) (2) (3) (4) (5) (6) (7).

*Why did you choose this number? >>* \_\_\_\_\_  
\_\_\_\_\_

## Earth 29 Summative Review

During this first half of the year, students began with a “big picture” of the many facets of Earth science and how it relates to other natural sciences. Students explored maps, models, and how to use and interpret them – followed by an emphasis of Earth’s composition, its chemistry, along with the varieties of minerals and rocks. Multiple topics introduced Earth’s dynamics including the theory of plate tectonics along with the observable realities of earth quakes and other natural phenomena. Last, an outline of weathering, erosion, impacts of rivers, and the importance of wise usage of natural resources was emphasized. (topic) Does this paragraph mention, describe, imply, refer to, or convey:

1. (YES) (NO) any **patterns**?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

2. (YES) (NO) any **cause and effect**?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

3. (YES) (NO) a **quantity, numeric scale, or proportion**?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

4. (YES) (NO) a **system, or organized structure**?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

5. (YES) (NO) about **energy or matter**? (*Especially flows, cycles, and conservation*)?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

6. (YES) (NO) the **structure or function** of something?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

7. (YES) (NO) concepts of **stability and/or change**?  
*in what way >>* \_\_\_\_\_  
\_\_\_\_\_

Circle the number which BEST represents the paragraph? (1) (2) (3) (4) (5) (6) (7).

*Why did you choose this number? >>* \_\_\_\_\_  
\_\_\_\_\_

