

Name: _____ Period: _____ Date: _____

Cave and Karst Comic Model

Due Date: _____


7.2.7 Use geological features such as karst topography and glaciation to explain how large scale physical processes have shaped the land.

DIRECTIONS: You will create a MODEL (such as a comic, a “lift the flap” or pop up book, or with modeling clay, etc.) to demonstrate your understanding of:

- how caves form in limestone bedrock
- how cave formations (such as stalactites) form and “grow”
- how sinkholes form in karst topography

STEP 1: Read the text below. Analyze it to determine the **sequence** (put into step-by-step format) of **how limestone caves form through chemical weathering and ground water erosion**. Mark the text. Use the box to the right to **record** your analysis and sequence of the steps. I have completed the first step for you as an example.

Groundwater Erosion When rain falls and snow melts, not all of the water evaporates or becomes runoff. Some water soaks into the ground. There it fills the openings in the soil and trickles into cracks and spaces in layers of rock. **Groundwater** is the term geologists use for this underground water. Like running water on the surface, groundwater affects the shape of the land.

 **Groundwater can cause erosion through a process of chemical weathering.** Rainwater is naturally acidic. In the atmosphere, water combines with carbon dioxide to form a weak acid called carbonic acid. Carbonic acid can break down limestone. Groundwater containing carbonic acid flows into any cracks in the limestone. Then some of the limestone dissolves and is carried away in a solution of water. This process gradually hollows out pockets in the rock. Over time, these pockets develop into large holes underground, called caves or caverns.

Step 1: After it rains, water soaks into the ground.

STEP 2: Read the text below. Analyze it to determine the **sequence** (put into step-by-step format) of **how cave formations form through deposition**. Mark the text. Use the box to the right to **record** your analysis and sequence of the steps. I have completed the first step for you as an example.

Cave Formations The action of carbonic acid on limestone can also result in deposition. Inside limestone caves, deposits called stalactites and stalagmites often form. Water containing carbonic acid and calcium from limestone drips from a cave's roof. Carbon dioxide escapes from the solution, leaving behind a deposit of calcite. A deposit that hangs like an icicle from the roof of a cave is known as a **stalactite** (stuh LAK tyt). Slow dripping builds up a cone-shaped **stalagmite** (stuh LAG myt) from the cave floor.

Step 1: Water containing carbonic acid and calcium from limestone drips from the roof of a cave.

STEP 3: Read the text below. Analyze it to determine the **sequence** (put into step-by-step format) of **how sinkholes form in areas of karst topography**. Mark the text. Use the box to the right to **record** your analysis and sequence of the steps. I have completed the first step for you as an example.

Karst Topography In rainy regions where there is a layer of limestone near the surface, groundwater erosion can significantly change the shape of the land. Streams are rare, because water easily sinks down into the weathered limestone. Deep valleys and caverns are common. If the roof of a cave collapses because of the erosion of the underlying limestone, the result is a depression called a sinkhole. This type of landscape is called **karst topography** after a region in Eastern Europe.



Step 1: Karst occurs where the region is rainy and limestone [bedrock] is near the surface.

STEP 4: After analyzing the text, you may want to check out the resources I've sent out through Edmodo. You can do your own research other details and inspirations as well.

STEP 5: Create a model (comic, flip flap book, etc.) that **SHOWS and EXPLAINS** how caves form. **(You could earn a grade up to a "C-" for this.)**

- I have blank paper, comic templates and colored pencils. Other materials for other model options must be provided by you.
- You will NOT be graded on your artistic ability. You WILL be graded on how NEAT, DETAILED, ACCURATE, and COLORFUL you are.
- You can research on the Internet to help you with images. Your images should help clarify your descriptions.
- See grading rubric below for details.

STEP 6: Continue your model (etc.) by **SHOWING and EXPLAINING** how cave formations (called "speleothems," such as stalactites and stalagmites) form. You could also show other formations. **(You could earn a grade up to a "B" for this.)**

Step 7: Continue your model, (etc.) once more BY **SHOWING and EXPLAINING** how sinkholes are formed in an area of karst topography. **(You could earn a grade up to an "A+" for this.)**

| Topic | Information Accuracy: Explanations | Information Accuracy: Drawings/Diagrams |
|--|---------------------------------------|--|
| (C) How caves form through chemical weathering and ground water erosion of limestone. | 0 2 5 8 | 0 2 5 8 |
| (B) How cave formations form through deposition. (ex. stalactites, stalagmites, etc.) | 0 1 2 3 | 0 1 2 3 |
| (A) How sinkholes form in areas of karst topography. | 0 1 2 3 | 0 1 2 3 |
| Information is detailed. | 0 2 4 6 | - - - - |
| Drawings/diagrams are neat, detailed, and colorful. | - - - - | 0 2 4 6 |

* In place of steps 6 and 7 students could complete the "Caves and Karst" web quest.

TOTAL: _____ /40

