

# Southeast Alaska Discovery Center- Lab to Go

## Caves and Karst Diorama Activity Instructions

### Activity Goal:

To develop understanding of cave formations and vocabulary through building models. Caves are natural features in the earth with voids, cavities, and interconnected passages. In this activity we will explore some of the individual mineral formations that can be found in cave systems. These features are also found in karst systems, a type of landscape that forms when rocks are dissolved forming large passages, channels, caves, sinkholes, and springs. These features change and grow over long periods of time.



### Supplies:

1. Crayons, markers, colored pencils, or paint and brushes
2. Sheet of cardstock/cardboard or open box
3. Printable template
4. Glue or tape
5. Scissors
6. Scoring tool or butter knife and ruler
7. Clay, salt dough or other sculpting material.

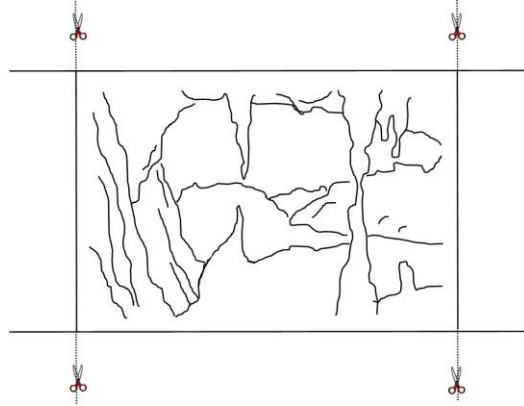
**Making the box:**

1. Using a ruler and the back of a butter knife or other tool, score along all of the solid lines. Scoring the cardstock will create an even fold line.



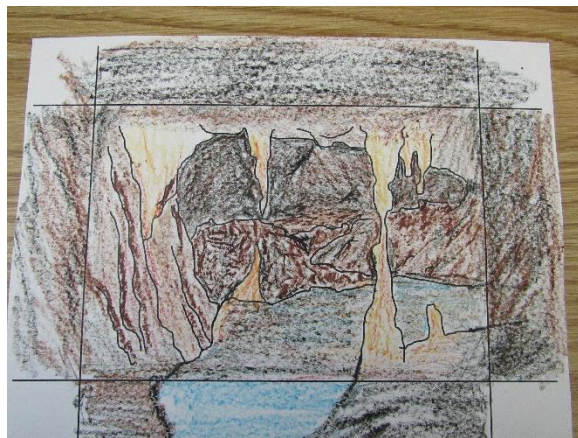
- a.
- b. Place the ruler along the lines of the template.
- c. Using the back of the butter knife make a cutting motion along the edge of the ruler, pressing firmly. Caution do not cut through the cardstock.

2. Using scissors cut along the dotted part of each line on the template.



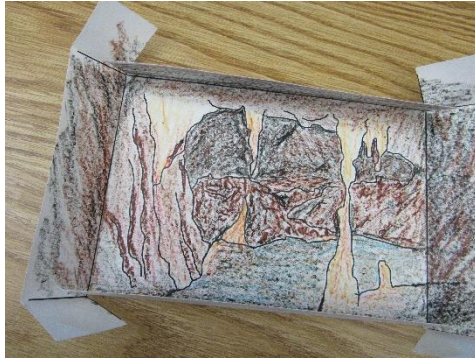
a.

3. Using Crayons, markers, colored pencils, or paint and brushes fill in your background. Leave corners blank as this is where you will place glue or tape in the next step.



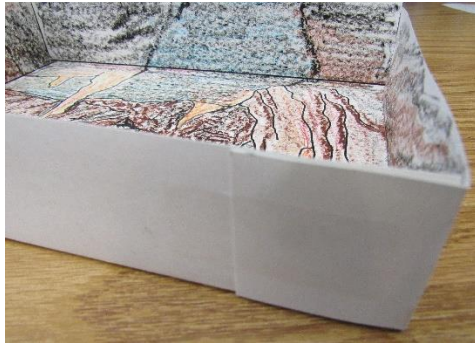
a.

4. Fold the template along the lines scored in step 1.



a.

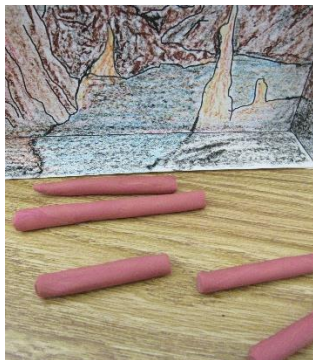
5. Using tape or glue, secure the corner tabs to the outside of the box.



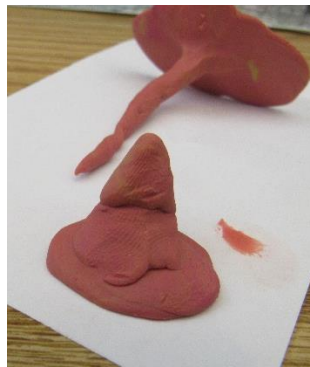
a.

### Diorama Elements

6. Create a variety of cave mineral formations using clay/salt dough.
  - a) Roll the clay into a thin tube the size of a pencil. Cut into several pieces.
  - b) Pull or roll one end to a point or rounded mound. Flatten the other end to make a stable base for the formation to attach to the ceiling, floor, or wall of you cave. These formations can be grouped together. Remember a stalactite should have a matching stalagmite below.



c)



7. Suggested formations:

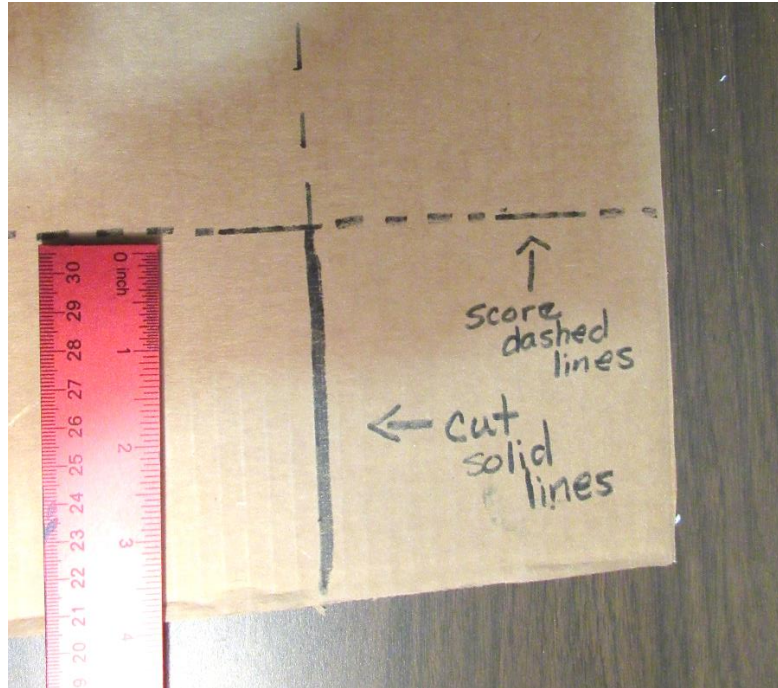
- a) Stalactite – a tapering structure hanging like an icicle from the roof of a cave, formed of calcium salts deposited by dripping water.
  - b) Stalagmite - a mound or tapering column rising from the floor of a cave, formed of calcium salts deposited by dripping water and often uniting with a stalactite.
  - c) Column - an upright pillar formed when a stalactite and a stalagmite grow together into one formation.
  - d) Flowstone (cave bacon) - forms when water smoothly runs down an overhanging wall as the minerals buildup they produce long thin sheets with undulations similar to crisp slices of bacon.
8. Allow to dry (and paint or color if desired) then glue into place inside the diorama.

**Notes:**

- ✓ When using salt dough, it is recommended that you form the parts and allow them to air dry before coloring or painting. Once complete glue the parts in place.
- ✓ To make a larger box, the template can be transferred to cardboard or poster board. It is recommended to use a strong adhesive, like hot glue or packing tape, when using cardboard or poster board to form the box.
  - a. Cut poster board or cardboard to form a rectangle.
  - b. Measure the desired dept or the box from the edge of the poster board on all four sides. Connect marks to form lines.



- c.
- d. Score along lines, to create folds. Then cut tabs.



- e.
- f. Follow steps 3-5, above, to add background and form box.

### Making Salt Dough

The unit size can be adjusted to make the desired amount of dough. Using 2 cups flour, 1 cup salt, and 1 cup water, makes about two baseball size lumps of dough. Food coloring can be added to tint the dough, this coloring should be added to the water prior to mixing with dry ingredients. This dough stores well in an airtight container, like a zip top bag, in the refrigerator.

1. Measure 2 units of white flour, 1 unit of salt into mixing bowl.
2. Stir together the flour and salt.
3. Slowly add one unit of water while constantly stirring.
4. Once mixed, knead with hands until dough is smooth. You can knead on a lightly floured surface, however, avoid adding too much flour this way or your dough will not remain sticky.