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**How Do You Stack Up**

**Directions:**

According to the principle of superposition, in undisturbed sequences of sedimentary rock, the oldest layers are on the bottom. Geologists use this principle to determine the relative age of the rocks in a small area.

In this activity, you will model what geologist do by drawing sections of different rock outcrops. Then you will create a part of the geologic column, showing the geologic history of the area that contains all the outcrops.

**Materials:**

-Metric ruler -Pencil - Colored pencils or crayons

-Paper -Scissors - Tape/glue

**Procedure:** (Check off each step as you complete them)

1. Cut out the boxes shown on the last page of your lab.
2. Number your outcrops on the back so when you cut them out you will know which outcrop they belong in.
3. Use colored pencils to shade the different layers of each outcrop.
4. Pay close attention to the contact between layers - straight or wavy. Straight lines represent bedding planes (shows the different layers of rock), where deposition was continuous. Wavy lines represent unconformities, where rock layers are missing. The top of each outcrop is incomplete, so it should be a jagged line. (Assume that the bottom of the lowest layer is a bedding plane)
5. Cut out each outcrop and cut out at all the unconformities (wavy lines).
6. Note the symbols representing fossils in the layers of your outcrops. Pay attention to the variety of fossil shapes and the layers that they are in.
7. Lay the individual outcrops next to each other on your desk or table.
8. You will now make a geologic column that represents all four outcrops. It will show rock types and fossils for all the known layers in the area. To do this keep each outcrop in order and align the matching rock layers.
9. Tape or glue your geologic column on the paper provided.
10. On your geologic column identify and label the following

* The oldest rock layer -The youngest rock layer
* All the unconformities -Index fossil(s)
* Number the rock layers

**Answer the following questions using complete sentences with a restate.**

1. How many layers are in the geologic column you modeled?

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2. Which is the oldest layer in your column? Which rock layer is the youngest? Describe these layers in terms of rock types and fossils they contain.

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3. Which, if any, fossils can be used a index fossils for a single layer?

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4. Why would you consider the fossils mentioned in question three index fossils?

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5. List/draw the fossils in your column from oldest to youngest.

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6. Look at the unconformity in Outcrop 2. Which rock layers are partially or completely missing? Explain how you know this.

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