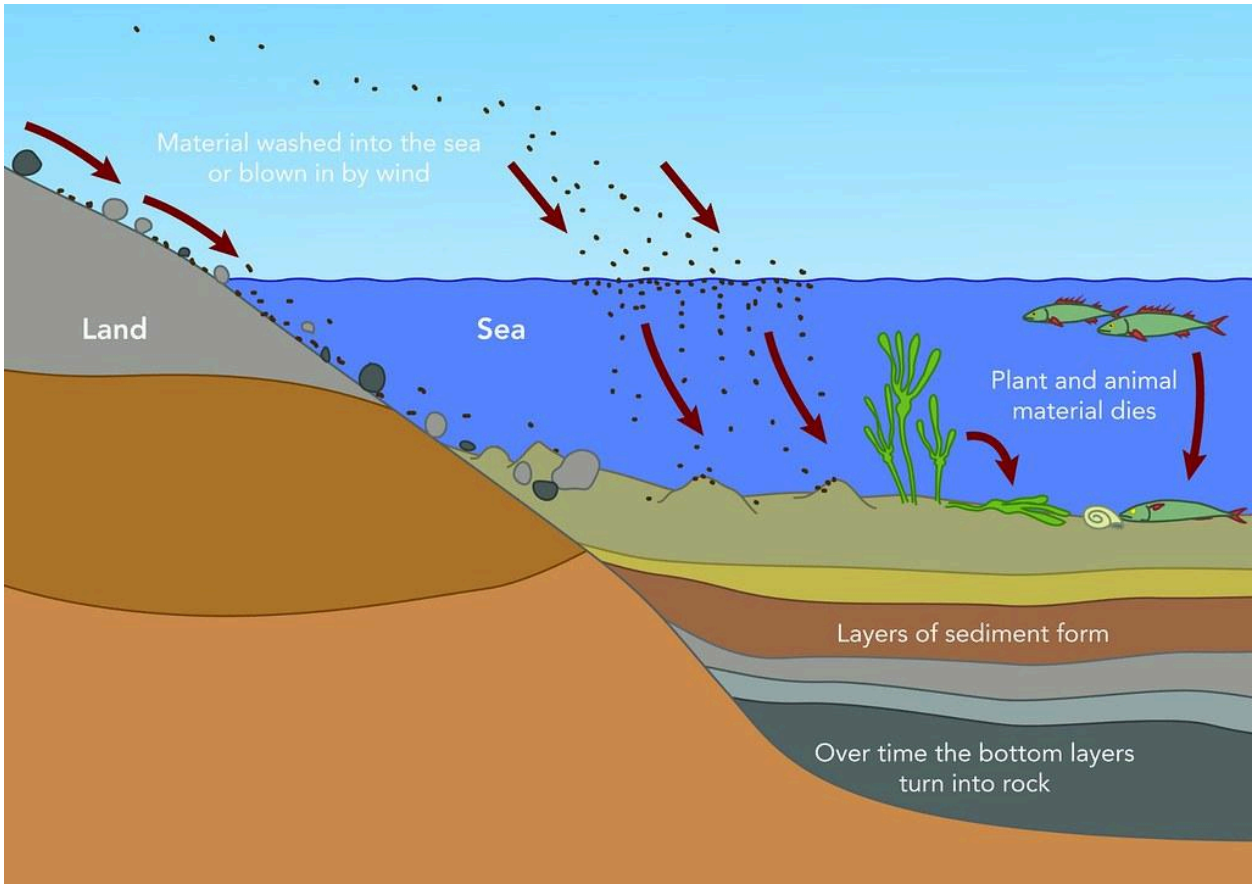
Sedimentary Science - Learning in Layers :)



Directions - Read through the experiment. Fill in any blanks.

Question - If I layer pieces of bread and gradually add weight upon the layers, what physical changes will I observe in the bread?

Research - (READ and HIGHLIGHT CRITICAL INFO!!!) This simple science experiment demonstrates how sedimentary layers compress under pressure. For example, the Spokane River leads to the Columbia that carries a large amount of sediment from the continents to the Pacific Ocean. At the mouth of the river the largest particles settle out. Further offshore silt drifts to the ocean floor. After large storms new layers of silt settles to the ocean floor.

NASA estimates that 500 million tons of sediment are deposited on the ocean floor each year by the Mississippi River. The bottom layers have tremendous pressure exerted on them not only by the ocean water, but also by the individual layers above. As the pressure increases the water is forced out and sedimentary rock forms. In this experiment you will see the effects of pressure on dark and light slices of bread.

Hypothesis - *If* I layer pieces of bread and gradually add weight upon the layers, *I think* I will observe the bread,

_____

_____,

because

_____

_____.

MATERIALS - Wax paper, Wheat bread, White bread, Ruler, Books of various sizes

Procedure -

Step 1 - Organize materials.

Step 2 - Place a sheet of wax paper on a counter, table or floor.

Step 3 - Trim the crust off of a slice of white bread and place it on the wax paper.

Step 4 - Trim the crust off of a slice of dark bread and place it on the white bread like a sandwich.

Step 5 - Create a data table to record the thickness of the slices of bread in millimeters.

Bread Slice	Thickness in Millimeters
White	
Wheat	

Step 6 - Measure and Record the thickness of each piece of bread.

Step 7 - Draw and Label a science diagram of your experiment.

Step 8 - Add a piece of wax paper to the top of the "sandwich," and balance a book on top of it.

Step 9 - Let sit for 24 hours.

Step 10 - Observe the experiment, create a science diagram, measure and record the thickness of each piece of bread in millimeters.

Step 11 - Balance another book on yesterday's book.

Step 12 - Repeat Steps 10 and 11 for a minimum of 2 more days. ***You can do it as long as you like for FUN!!!***

Step 13 - Analyze the Data

- What did you observe (see)?

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  _____

  _____

- What did you infer (think)?

  _____

  _____

  _____

Conclusion - Use the following questions to write an epic conclusion explaining what you did, what happened, and what you learned.

- What was your question?
- What was your hypothesis?
- Was your hypothesis valid or invalid? Why? What was your data?
- What did you learn?
- What were your sources of error?
- What experiments could you do to learn more?

EXTENSION - Squish other material in between the bread. What else could represent the layers? Flour? Sugar? Sand? Heck, maybe you should squish a sedimentary sandwich!!!