

# **Primordial Ooze & Continental Drift (#4)**

Grade Level: 3

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## **National Content Standard Alignment**

- Science (NSTA):
- Content Standard A, E & F
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- English Language Arts (NCTE):
- Standards 3, 7, 11 & 12

## **Student Learning Objective(s)**

- SWBAT understand that continental plates drift and this affects the layers of the earth.

## **Assessment**

- Informal: Teacher observation & questioning throughout the lesson
- Formal: Worksheets #2 & #3 will be completed and teacher will provide written feedback.

## **Materials/Resources**

- Student's "Stone Wall Journals"
- *Stone Wall Secrets* by Kristine and Robert Thorson
- Worksheets #2 & #3
- Crayons
- Chocolate Frosting (preferably with chocolate chips in it)
- Chocolate Graham Crackers (enough for each student to get a full cracker)
- Plates or wax paper
- Popsicle sticks

## **Learning Activities**

### **Initiation**

- Teacher asks students to remember what they studied last class. Students volunteer answers such as “stone walls, nature path, maps” and teacher expands discussion by adding description to each response.
- Teacher explains that last time they left off, students were plotting where they thought stone walls were located on their schools’ property. Teacher has a map of school on board and proceeds to draw the location for each of the stone walls while students copy them on part A of worksheet #2.
- Weather permitting, class may take a nature walk for another close observation of stone walls before completing part B of worksheet #2.

## Lesson Development

- Teacher asks students to turn to the page starting, “Eons passed” (page with illustration of mountains) and reads aloud to paragraph ending with “a special stone” (following page) in *Stone Wall Secrets*. Students follow along in their own books.
- Teacher explains that there were some big, scientific words that students may not have understood in the pages the class just read aloud. Directions are given to finish coloring, so together the class can figure out what the book is talking about by doing an experiment.
- Teacher facilitates discussion about continents since “Grandpa” talked a lot about them by asking students:
  - What is a continent?
  - How do they move?
- EXPERIMENT: Students will learn how continents slide across the mantle of the earth. Each child receives a popsicle stick, a sheet of wax paper with some chocolate frosting in the middle and 1 full chocolate graham cracker, which students will split in half. Teacher explains that:

Chocolate frosting represents the mantle of the earth since it is “ushy, gushy, thick, sludgy and black.” Students can think of it as “primordial ooze” beneath the crusts’ surface to help them conceptualize this earth process.

Chocolate chips in the frosting represent big boulders.

Each half of their full graham cracker represents a separate continent.

Students are directed to spread the frosting around the wax paper with the popsicle stick, but not too thinly. Now, students must place each graham cracker half on top of the frosting keeping in mind that they represent continents that were once one big blob of land.

Teacher instructs students to move the crackers back and forth and then sideways. The following science talk dialogue activators may be used, “What do you notice? Now push them with more force into each other; what happens now?”

A science talk follows questioning and exploring how & why land crushes into each other, how earthquakes are formed by “rifts,” and how mountains are created.

## **Closure**

- Worksheet #3 is dispersed to each student and class discusses what kind of wall is pictured. Teacher may ask questions such as:

Are bricks stones?

- Teacher reads part A of worksheet #3 aloud and gives students time to complete it.
- Students must individually use their knowledge from the experiment they just completed, as well as information learned from *Stone Wall Secrets* to complete part B.