

## **8<sup>th</sup> Grade Science Lesson Plan**

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Objectives:

- Students will be introduced to the formal definition of sand and will be able to explain how sand is created
- Students will be introduced to and be able to identify different forms of erosion
- Students will work collaboratively in the lab setting to carefully observe and describe sand particles based on existing scientific scales
- Students will practice using microscopes as precise scientific instruments

Context:

Prior to this lesson, students have been introduced to different forms of rock (igneous, metamorphic, and sedimentary) and have practiced identifying rocks using characteristics including color, hardness, grain size, cleavage, and streak color. In the lessons that follow, students will learn about physical and chemical weathering and construct stream tables to observe how erosion and weathering can impact an area of land.

Rationale:

In this lesson, students will take notes on the material on a modified version on the teacher's PowerPoint presentation. This utilizes the district's technology and allows students to save an electronic version of the teacher's notes upon completion of the lesson. By completing the notes electronically, the students will have a digital copy, special education teachers can quickly be provided with an exact copy of the teacher's notes, and students engage with the note-taking process to a greater extent than simply filling in an outline or taking hand-written notes. Providing a modified PowerPoint is also a common practice for college professors.

Additionally, students will be making detailed observations of sand and sediment in the lab setting. Science labs that focus on student collaboration and offer students the opportunity to tangibly interact with the material foster a learning environment of curiosity and interest. The lab also offers students the ability to have concrete material to supplement the more abstract content focused in note taking activities. The well designed lab is a developmentally responsive tool for middle school students.

Standards (from Lake Bluff Science Curriculum Outcomes):

- Weathering and Erosion
- Investigating theories and supporting evidence
- Identifying major geological events

### **Lesson Flow:**

Starter:

- As students enter the classroom, the starter will be displayed using the projector. Students should be turning in any work that was completed over the break and beginning to solve the word puzzles.

Activity 1:

- The instructor will remind students to turn in any completed assignments.
- The instructor will go over the schedule for the class period and the following weeks.
- The instructor will lead the class in a discussion to correctly solve the word puzzles.

Activity 2:

- Students will download the Sand Notes 1 PowerPoint from the Gagle Digital Locker (I will also have the PowerPoint posted on the homework hotline as a back-up).
- Students will take notes on their modified version of the PowerPoint presentation as the teacher presents the material. Students will fill in any missing terms and take additional notes in the "Notes" portion of each slide.
- Reminders for students:
  - o Stay on the same slide as instructor
  - o Add additional notes
  - o You are not be on other websites or doing other work
  - o Ask questions
- Reminders for instructor:
  - o Need to allow 40 minutes for students to complete the lab.
  - o Foster, but try not to influence conversation about Sunrise Beach Erosion.

Activity 3:

- Students should save their notes as the instructor passes out their lab handouts.
- Instructor will briefly highlight important lab information.

- Instructor will demonstrate and describe proper microscope use.
  - o Care of the instrument
  - o Course and fine adjustment

#### Activity 4:

- Students will be given approximately 40 minutes to work on the lab.
- During the lab, the teacher will move from lab station to lab station asking groups guiding questions, commenting on lab procedure and answering any questions.
- Lab Groups will be required to pack up their materials with 7 minutes remaining in class.
- The last 4-5 minutes of class will be a short review discussion of the lab. Sample questions:
  - o What did the sand look like under the microscope?
    - How would you describe the sand using the criteria of shape, sorting, and composition?
  - o Why were the sand particles fairly rough and jagged?
  - o Why is it important to have common ways to describe sand and other objects?
  - o Does sand come from sandstone or does sandstone come from sand?

#### Assessments:

- Formative:
  - o The instructor will be observing students as they take notes on the PowerPoint.
  - o The instructor will be moving from lab group to lab group observing student participation and focus on the activity.
  - o The instructor will make an informal note of student answers during the wrap-up discussion (example: common misconceptions, difficult topics).
- Summative:
  - o Student lab packets will be submitted. Labs will be graded based on thoroughness of sketches and descriptions and answers that have appropriate supporting evidence.

#### Homework:

- Any portion of the lab that is not complete.