**Lesson Cycle (Gradual Release of Responsibility)**

**Lesson Title/Topic:**

Using Chocolate Chip Cookies to Demonstrate How Archaeologists Recover Ancient Artifacts

**Standards:**

CCRS: Science Standards. IV.C.1. Understand the historical development of major theories in science.

CCRS: Cross-Disciplinary Standards. I.E.1. Work Independently.

CCRS: Cross-Disciplinary Standards. I.D.3. Strive for accuracy and precision.

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| **Lesson Objectives:** Students will successfully complete the cookie excavation worksheet with 80% accuracy.  | **Assessment:** Students will complete cookie excavation sheet while excavating their cookie.  |
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**Materials:** Cookie excavation worksheet, 1 chocolate chip cookie (or oatmeal raisin), 2 tooth picks, paper plate, napkins.

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| **The teacher will:** | **The student will:** |
| **Focus:** Ask students what they think an archaeologist is. What are some things that they find? How do they excavate?  | Students will get in partners and discuss what they think an archaeologist does and how they do it. After 90 seconds of discussion, students will share their answers with the teacher. |
| **Teacher Input (I Do):** Teacher will explain tri-fold poster. Poster will explain the actual definition of “archaeologist”, how to become one, their salary, and what it’s like to be an archaeologist.  | Students will listen to career information and take notes. |
| **Guided Practice (We Do):** Teacher will demonstrate proper technique for cookie excavation and will explain the worksheet instructions for the students.  | Students will excavate their chocolate chip cookie. Before beginning, students will follow the steps on the worksheet. Students are to mark the cookie on the “cookie excavation site” and record the coordinates. Then, they will sketch the cookie perimeter as well as record the chocolate chips that they see (before excavating) on the “grid map”. |
| **Independent Practice (You Do):** Teacher will provide different types of cookies that could represent different types of soil or artifacts. This will demonstrate how digging isn’t always the same.  | Students will excavate the cookies and complete a worksheet for each cookie excavated. An oatmeal raisin cookie will demonstrate how some artifacts might be easier to excavate than others. For example, raisins would be easier to excavate when compared to oats. Students may then research in pairs or individually archaeologists and their job. They will write a short research paper (1/2 page) on their findings.  |
| **Closure:** Teacher will ask a series of questions. Teacher will initiate discussion on how real-life archaeologist do this in their career.  | Students will answer questions: What problems did they encounter excavating their chips? Was it easy to determine where the chips were in the cookie? How many students excavated a chip only to discover that they sacrificed another one underneath it? Students will then contribute to discussion on other ways they could excavate in real life.  |

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| ***Bloom’s Level(s)****Create:* Students will create their own excavation grid and answer questions about their excavation site. *Evaluate:* Students excavate their own cookie and evaluate the difficulties within the project.*Analyze:* Students analyze their findings by determining how many chocolate chips were salvageable. *Apply:* Students apply knowledge of cookie excavation to the real world. *Understand:* Students use this knowledge as well as their research to write their ½ page paper on archaeology. *Remember:* Students will remember this information when they decide to choose a career.  |  ***Technology Integration:*** Students research archaeologists.  |
| ***Extension:*** Students will use a different type of cookie to demonstrate how different terrane can impact excavation. Have students research archaeology career and what it entails.  | ***Reteach:*** Teacher will more thoroughly explain the job functions of an archaeologist and use a more relatable activity using toy “fossils” and dirt for the excavation.  |

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| **Accommodations:** Students who are allergic to ingredients in cookies will be able to use Play dough with chocolate chips mixed into it. **Modifications: S**tudents who have trouble hearing will be provided with a complete set of written notes and instructions for the activity.  |  **References:** Anthropologists and Archeologists : Occupational Outlook Handbook. (2019, September 4). Retrieved October 29, 2019, from https://www.bls.gov/ooh/life-physical-and-social-science/anthropologists-and-archeologists.htm.What do Archaeologists do? Retrieved October 29, 2019, from https://www.saa.org/about-archaeology/what-do-archaeologists-do. |

