**Pre-K Professional Learning Program Lesson Plan**

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| **Content Area:** | **STEM – Magnet Counting** |
| **Lesson Title:** | **Magnet Treasure Hunt** |
| **Time Frame/Lesson Length:** | 10-15 mins |
| **Lesson Setting:** | This lesson is designed to be taught in a classroom science area or a classroom table with access to investigation tools. |
| **Grouping of Students** | Small groups of 2-4 students are recommended for teaching this lesson. |

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| **Lesson Objective:** | Students will investigate how metals attract to each other and count out the amount magnetic treasures discovered.  *Student-friendly: I can count and investigate magnets.* |
| **Aligned Standard(s):**  **(TN-ELDS)** | *PK.ETS2.01a Recognize that tools have specific characteristics that determine their use.*  *PK.ETS1.01a Use senses to gather, explore, and interpret information.*  *PK.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.* |
| **Assessment Method:** | Teacher will see if student has prior experience using magnets and other metal materials based on use.  Teacher will record if student can use the one-to-one correspondence method when counting how many paper clips have been collected using the magnet.  Teacher will record if student can recognize numbers and place the correct amount of paper clips in container according to the number they see. |

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| **Background Knowledge** | Students may have previous knowledge of how objects are attracted to each other.  This activity will expand or introduce how magnets and metal materials can be attracted to each other. It will also allow the student to explore different options when using magnets. |
| **Intentional Vocabulary:** | Magnet  Investigate  Scientist |
| **Materials Needed:** | The investigation area should be set up before the lesson. Set up the area with the paper clips under the beans in a large bin, container, or sensory table. Place magnets and number containers on the table for students to place the paper clips in. See attached pictures at the end of document for more information.   * One large empty container filled with rice or beans * Magnetic wand or horseshoe (one tool per student) * Magnetic “treasures” (paper clips, nuts and bolts, dull screws, refrigerator magnet, binder clip, old key, etc) |
| **Considerations for Learning:**  *possible challenges, management issues, and safety considerations* | Remind students of safety rules for science experiments before beginning the lesson. Remind students that nothing should ever go in their mouth or ears unless specifically instructed to do so. Some students may need assistance in understanding how to use the magnets. Remind students that magnets must stay in the science area and should never be used near computers or electronics. |

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| **Lesson Procedures and Questioning** | | |
| **Lesson Section** | **Detailed Procedure**  *[Sample teacher script is in italics]* | **Questioning Sequence** |
| **Introduction:** | Prior to the lesson, set up the investigation area with the paper clips under the beans in a large bin, container, or sensory table. Place magnets and number containers on the table for students to place the paper clips in.  Invite students into the investigation area to explore new items. Share the objective. Display the magnetic wand or horseshoe and ask students what they know about the tool.  *Sample Teacher Talk: Today you are going to be scientists and investigate! What is a scientist? Scientists have really cool jobs. They get to use special tools and lots of different skills like counting, sorting, and asking questions. You will investigate how scientists use magnets and count too!*  Invite students to use the magnetic wand to find out what is hidden in the container with beans.  *Sample Teacher Talk: I heard there are some secret treasures underneath these beans. Can you use the magnetic wand to find the treasure?*  The students should be given the opportunity to investigate what is happening on the table independently. Teacher should ask investigation questions to see if students can make predictions about what will happen when using the magnets that are provided. | Knowledge and comprehension questions are recommended for the introduction.   * What is a magnet? * What do magnets do? * How can you use this magnetic wand? * What is a scientist? * What does it mean to investigate? |
| **Exploration:** | Allow the students time to investigate. Encourage students to use the magnet wand to find the hidden treasures.  The teacher should serve as a facilitator during the exploration time. Ask open-ended questions and participate in discussion. Encourage students to count and describe the treasures that they find. | Application and analysis questions are recommended for the exploration.   * How are you using the magnet? * What happens when the magnet is placed in the container? * What is that treasure? * Why do you think it sticks to the magnet? * How many treasures did you find with the magnet? * Did the magnet catch any beans? Why not? * Which treasure did you find the most of? Which treasure did you find the least of? |
| **Closing:** | *Sample Teacher Talk: Today you practiced being a scientist! You used tools to investigate objects. You counted and described your objects.*  Lead a discussion to reflect on student learning. Explain that these materials will be at the science/exploration area during center time.  Encourage students to draw and write their observations in their journals, reflecting on their predictions and experiment results. | Creation and evaluation questions are recommended for the closing.   * What are some other ways to use magnet? * What are some other ways we could have looked for the treasure? * How many treasures were found on the hunt? * What are some other ways that scientists investigate? * What other things do you think scientists do? |

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| **Opportunities for Differentiation:** | To provide more math practice, the teacher can label small containers with numbers and invite students to place that many magnetic objects in the corresponding container. Students will have varying levels of language ability. The teacher can provide visual cues and vocabulary support through conversation. |
| **Extending the Learning:** | Adding other elements to the container to see what the magnets pick up and do not pick up. Allow the students to gather other classroom objects to bring to the activity.  Reading materials about the topic:  *Magnets: Pulling together, Pushing Apart* by Natalie M. Rosinsky  *Magnets Push, Magnets Pull* by David A. Adler |

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| **Images of Sample Materials** |
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