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

|  |  |
| --- | --- |
| **Content Area:** | **Math** |
| **Lesson Title:** | **Introduction to Measurement** |
| **Time Frame/Lesson Length:** | 15 minutes |
| **Lesson Setting:** | This lesson is designed to be taught at a small group table or on a classroom rug. |
| **Grouping of Students** | Small groups of 4-5 students are recommended for teaching this lesson. Students should be grouped homogeneously (similar ability levels) regarding mathematical ability. The option of heterogenous (different ability levels) groups is also available to provide peer modeling among students. |

|  |  |
| --- | --- |
| **Lesson Objective:** | The students will use non-standard means of measurement to examine objects and determine the differences in their lengths.  *Student-friendly: I can use classroom items to measure objects.* |
| **Aligned Standard(s):**  **(TN-ELDS)** | *PK.MD.A.1 Describe measurable attributes of a single object, such as length, width, height.*  *PK.MD.A.2**Compare the attributes of two or more concrete objects and use words to define attributes of the objects (i.e. heavier/lighter, longer/shorter, etc.).* |
| **Assessment Method:** | The teacher will make anecdotal notes detailing student ability to measure using the different means. This documentation will be used to determine which students need more practice, support, and instruction with counting and their understanding of measurement. |

|  |  |
| --- | --- |
| **Background Knowledge** | Students should have prior knowledge of measuring with non-standard tools. This lesson is not intended to be an introduction to measurement. This lesson is intended to be an opportunity for more practice with measurement. |
| **Intentional Vocabulary:** | Measure – when you see how big or small an item is  Length – how far an item is from end to end  It is recommended that the teacher provide a visual or a physical action to help students remember the definition of each word. |
| **Materials Needed:** | * non-standard measuring tool (example: unifix cubes, paperclips, small blocks, erasers, or crayons) * Standard measuring tools (ruler and measuring tape) * objects to be measured (example: books, pencils, toys, and any other measurable objects that can easily be found in a classroom) |
| **Considerations for Learning:**  *possible challenges, management issues, and safety considerations* | Students may be excited to play with non-standard tools, especially if they are “teacher tools,” like paperclips or erasers. Allow students a minute or 2 to free play with the objects at the start of the lesson. This allows them autonomy with the objects before direct instruction and will help cut down on management issues that could arise. |

|  |  |  |
| --- | --- | --- |
| **Lesson Procedures and Questioning** | | |
| **Lesson Section** | **Detailed Procedure**  *[Sample teacher script is in italics]* | **Questioning Sequence** |
| **Introduction:** | The teacher will place all the measuring tools and objects for measurement in front of the small group. The teacher will lead a discussion about standard and non-standard measurement tools.  *Today we are going to practice measuring items in our classroom. To measure means to see how big or small something is. We can use different tools to measure items. The ruler and measuring tape are called standard measuring tools because they have numbers on them to help everyone understand how big or small something is, even if they aren’t in our class. The other items we have are non-standard measuring tools. We can use these to measure items in our class, but someone who doesn’t know what a unifix cube is might not understand how big or small something is if we tell them it is 5 cubes long.*  *“Today we will measure items in our classroom using non-standard measurement tools”.*  The teacher will give the children a few minutes to explore the tools and objects on their own.  The teacher will model measuring with the nonstandard tool. The teacher will take, for example, a book, and measure it. Model the lesson by using a “think-aloud” strategy. The children will assist her in determining if more or less of the nonstandard tool is needed. | Knowledge and comprehension questions are recommended for the introduction.   * “What do we have here?” * “How can we use these tools?” * “Let’s use these unifix cubes to measure the length of this book. How many do you think we need?” * “Do we need more unifix cubes to determine the length of the book? How many?” * “Do we need less unifix cubes to determine the length of the book? How many?” |
| **Exploration:** | The teacher will provide each child with an object to be measured and a handful of the nonstandard measuring tools to allow them to practice measuring on their own. | Application and analysis questions are recommended for the exploration.   * “How many unifix cubes do you think you will need to measure your object?” * “How did you figure out how many cubes you needed?” * “Does your object need more tools than another student’s object?” * “Whose object is longest? Whose object is shortest?” |
| **Closing:** | The teacher will reflect on student learning.  *“Sometimes people use standard measurement tools, like a ruler or measuring tape to measure items and tell someone about it. Today you measured using a non-standard measurement tools to measure and compare your objects”*  The teacher will acknowledge various ways that students discovered how many pieces were needed.  “*Joe started with five cubes, but realized he needed more.” “Lily used twelve pieces but removed some cubes to make the length shorter.”*  The teacher will ask students what else in their classroom they could measure. | Creation and evaluation questions are recommended for the closing.   * “What did you do today?” * “How did you use your cubes?” * “What other objects can we measure in our classroom?” * “Why is measuring important?” |

|  |  |
| --- | --- |
| **Opportunities for Differentiation:** | For students with limited language exposure, you may need to help provide correct vocabulary for specific characteristics (I.e. long or short).  For students who are measuring with ease, encourage them to explore and measure in as many ways as possible. You can also ask them to find other objects in the classroom to use as measuring tools.  For a group of students who grasp the concept of using non-standard measuring tools, choose 5 items and a corresponding length link of unifix cubes for each item. Display these items to the group, giving each child a unifix cube link. Ask the student to determine which item his or her unifix cube stack measures correctly. Encourage the student to look with their eyes first and not just immediately hold his or her stack up to each item. Have them explain why they chose the item they chose. |
| **Extending the Learning:** | Encourage measurement and size comparisons at other centers throughout the day. Refer to the vocabulary during all parts of the day. Determining size and comparisons happen in multiple parts of the classroom. Be intentional with language during this time, referencing back to the small group lesson. |
| **Considerations for Learning:**  *possible challenges, management issues, and safety considerations* | Students may be excited to play with non-standard tools, especially if they are “teacher tools,” like paperclips or erasers. Allow students a minute or 2 to free play with the objects at the start of the lesson. This allows them autonomy with the objects before direct instruction and will help cut down on management issues that could arise. |