**Mathematics: Classification Learning Progression**

| **Domain: Mathematics** |
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| **Strand: Measurement and Data** |
| **Learning Progression: Classification** |
| **Operational Definition: Sorts and classifies objects according to attributes, and compares groups using comparison vocabulary**  |

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|  | **Level 1** | **Level 2**  | **Level 3**  | **Level 4**  | **Level 5** |
| **Sorting and Classifying** | Sorts and classifies objects into two groups by one attribute (e.g., color, shape, texture). | Sorts and classifies objects into more than two groups by one attribute, including measurable attributes (e.g., size, length, height). | Sorts and classifies objects by one attribute, and then further sorts each group by a second attribute.  | Sorts and classifies objects by two attributes at one time (e.g., color and shape; type and size). | Sorts and classifies objects based on subtle attributes: purpose, use, or personal preference or experience (e.g., sorts toy animals by “ones I’ve seen” and “ones I’ve never seen”). |
| **Comparing and Describing** |  |  |  | Compares the numbers of objects in groups using comparison vocabulary (e.g., greater than/more than/less than, equal to/same as). | Describes multiple similarities and differences of objects within and across groups. |

**Sorting and Classifying**

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| **Directions** | **Level Descriptors**  | **Evidence Examples** |
| Observe children during the regular daily routine and look for instances when they sort and classify objects. For each child, pay attention to the following details as you observe: * what objects the child is sorting and classifying
* what prompts the child to sort and classify the objects
* what attributes the child sorts and classifies the objects by
* how accurately the child sorts and classifies the objects

Collect and record evidence for each instance and each child that you observe. Use the evidence to determine and record each child’s level. | **1** | Child sorts and classifies objects into two groups by one attribute (e.g., color, shape, texture). | **George—**George was eating colored cereal for snack. He spread all of the pieces out on a napkin and sorted them by color (red and yellow). |
| **2** | Child sorts and classifies objects into more than two groups by one attribute, including measurable attributes (e.g., size, length, height). | **Dee—**Dee sorted and classified the stuffed animals in the play corner by size. She put the “big” animals on the chair, the “medium” animals on the couch, and the “tiny” animals on the table. |
| **3** | Child sorts and classifies objects by one attribute, and then further sorts each group by a second attribute. | **Nick—**Nick was playing with a set of magnetic blocks. He sorted and classified them all by color (blue, green, purple, and orange) and then mixed them all together before sorting and classifying them again by shape (triangle, square, diamond, and rectangle). |
| **4** | Child sorts and classifies objects by two attributes at one time (e.g., color and shape; type and size). | **Nathaniel—**Nathaniel picked up the bin containing cars and trucks of different sizes. He dumped the bin onto the carpet and sorted the vehicles into four piles: big cars, small cars, big trucks, and small trucks. |
| **5** | Child sorts and classifies objects based on subtle attributes: purpose, use, or personal preference or experience (e.g., sorts toy animals by “ones I’ve seen” and “ones I’ve never seen”). | **Jaime—**Jaime sorted and classified the books on the shelf into three piles. She named them “books I’ve read,” “books I want to read,” and “books I haven’t read but don’t really want to read.” |

**Comparing and Describing**

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| **Directions** | **Level Descriptors**  | **Evidence Examples** |
| Observe children during the regular daily routine and look for instances when they compare and describe the similarities and differences of objects. For each child, pay attention to the following details as you observe: * what prompts the comparison or description of similarities and differences of objects
* what objects the child is comparing or describing
* how accurately the child compares and describes similarities and differences of the objects

Collect and record evidence for each instance and each child that you observe. Use the evidence to determine and record each child’s level. | **4** | Child compares the number of objects in groups using comparison vocabulary (e.g., greater than/more than/less than, equal to/same as). | **Walter—**Walter was looking at the collection of puzzles on the shelf. He said, “There are more dinosaur puzzles than car puzzles. I wish we had more car puzzles.” When I said, “That means the number of car puzzles is [pause],” he finished the sentence with “less than the dinosaur puzzles.” |
| **5** | Child describes multiple similarities and differences of objects within and across groups. | **Jane—**Jane was comparing her shirt to the shirts of her friends Sara and Nadia. “We all have red shirts on, but mine has a picture of Wonder Woman, Sara’s has white hearts, and Nadia’s is plain. Sara’s and Nadia’s shirts have buttons, but mine doesn’t. Sara’s has more buttons than Nadia’s.” |