Mathematics
Classification: Sorting and Classifying

What: Sorting involves grouping items according to certain characteristics or attributes (e.g., sorting by color, shape, size, etc.). Classifying means applying a characteristic to a group or set (e.g., these are all circles, these are all big, etc.).

Why: Sorting and classifying help children notice how things are alike and different. As they explore objects, they learn about the attributes and relationships (e.g., *These blocks are all big, so they go here. These toys belong in the dramatic play center. These are circles, so let's put all of the circles together*.). Sorting and classifying help children learn organizational skills and notice patterns, which are all important for higher level math and science.

How:
1. Clean Up Crew
   o Ensure your classroom is organized in a way that children understand what toys and materials go where. At clean up, encourage children to return things to their assigned place.
   o Before giving too many directions, pause and see how children do on their own putting the toys where they belong. Do they understand how to return toys to their respective areas? If it's too difficult, consider if the room is organized in a predictable way or if additional cues are needed to help children succeed.

2. Recycle It
   o Set up classroom recycling systems. Sort trash by paper, plastic, and any other recyclable materials. Explain the sorting system and encourage children to help peers and visitors use the recycling system.
   o During the day, notice if children understand the recycling system. Are they able to sort the trash? Do they understand the classification system (e.g., *This can is for plastic. This one is for paper*.)?

3. Collections
   o Children typically love collecting. Introduce the concept and go on a collecting spree to gather the chosen objects. This can be fun to do outside, too. Provide buckets, bags, or baskets to hold the items collected. Once children finish gathering, come together to talk about what they found. Discuss the attributes of different objects (e.g., color, shape, size, texture, use, etc.). As a group, decide how the items can be sorted. Depending upon age and ability, children may sort by one or more attributes.
   o Make note of children's understanding of sorting and classifying. Do they understand similarities and differences of the objects collected? Do they sort items by the agreed upon classifications?

4. Animal Fun
   o After talking about where different animals live (e.g., on the farm, in the zoo, in the water) invite children to create large pictures of the locations identified. Then cut out pictures of animals from magazines and identify where they belong. Talk about sorting, and invite the children to move about to put each animal in an appropriate home.
   o Document how children sort and what questions they ask. Take pictures of the sorting to talk about later.

5. Color and Size Classification

- o Colors are everywhere. Focus on a particular color and size, and encourage children to go on a color hunt. Invite children to move about the room or outside to collect things that are the chosen color and size.
- o Talk about the findings. Observe how children understood collecting things of the identified color and size.

6. Family Chat
- o Ask families to share what kinds of sorting and classifying they've seen their child do out of school. Perhaps it's sorting laundry, silverware, toys, movies, or recycling. Encourage them to describe what they've noticed and what their child appears to understand about sorting and classifying. Talk with families about other sorting and classifying activities that happen naturally during their day.

Mathematics
Classification: Comparing and Describing

What: Comparing and describing involves identifying and defining similarities and differences among objects. For example, "This banana is different than yours because it is brown and mushy on the bottom, while your banana is bright yellow and firm."

Why: Comparing and describing form the foundation for analytical thinking and making logical assumptions.

How:
1. Planting a Garden
   o Watching plants grow and change over time provides a natural opportunity for children to compare and describe changes over time. Each day or week, ask children to describe what they see.

2. Mystery Item
   o Make a box with a hole large enough for children to place their hand through, but small enough that they cannot see items inside the box. Place items inside with different attributes. Next, invite children to explore the items with their hands, and encourage them to use their words to describe different traits (e.g., size, shape, texture, material, parts).

   o Take note of children's vocabulary and ability to describe what they are feeling. Consider keeping similar items outside of the box to help children review attributes to guess the mystery item.

3. Being Descriptive
   o Model being descriptive by using adjectives throughout the day (e.g., the fuzzy blue blanket; the small, scratchy blanket). Invite children to feel items and provide them with descriptive words as they explore them. Ask children to use words to describe what they see around the classroom throughout the day.

   o Document children's description of different objects. Also, note their description strategy — do they compare items with familiar items or place items side by side to determine if they are the same?

4. Snack Comparisons
   o Integrate comparison discussions into snack time. Use prompting comments and questions to model comparisons and encourage children to continue comparing. For example, *I have three crackers, you have two crackers*.

   o As children eat, listen for how they compare their snacks. Do you hear comparison words, such as more, less, most, and greater?

5. Vehicle Races
   o Create a ramp and collect a variety of vehicles. Compare the vehicles with children and identify similar and different characteristics (e.g., red, four wheels, large tires, construction trucks). Invite children to predict which car will travel the fastest, slowest, and longest distance down the ramp. Record predictions.

   o Review predictions and invite children to reflect on why certain cars traveled further or faster than others. Connect this discussion to various attributes and encourage children to set up additional experiments (e.g., *The two red cars travel the fastest. Do red cars always travel faster than other vehicles — let's try it!*)

6. Family Chat
   o Let families know about the snack comparisons with families, and encourage them to include comparison discussions in their meal times or home routines. Ask families to share the types of comparisons children are making.