

No. R35050

See-Through Sorting Trays



These inviting, durable trays bring the concept of graphing to life! The one-inch lip design allows sorting of a wide variety of objects. Through play, children have visual and tactile experience with the concepts of more and less, similarities and differences, grouping, merging groups, and organizing data.

Curriculum Relevance

- Illustrate relationships among objects with different attributes
- Play with the principles of graphing and data collection
- Organize and display a variety of data
- Master challenging concepts through three-dimensional play, before representing them on paper

Research Based Common Core Learning Standards in Mathematics are addressed through activities with the Sorting Trays

Measurement and Data: Kindergarten

CCSS.Math.Content.K.MD.A.1 Describe measurable attributes of objects such as length or weight. Describe several measurable attributes of one object.

CCSS.Math.Content.K.MD.A.1 Directly compare two objects with measurable attributes in common to see which object has "more of" or "less of" the attribute and describe the differences. For example, directly compare the height of two children and describe one child as taller or shorter.

CCSS.Math.Content.K.MD.B.3 Classify objects into given categories: count the number of objects in each category and sort the categories by count.

Measurement and Data: Grade 1

CCSS.Math.Content.1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than another.

Introducing the Graphing Trays When children have done lots of hands-on exploration with manipulatives, and are becoming aware of the similarities and differences among the objects, it is time to introduce the trays. The following activities work especially well with Roylco's Super Topplers and any of Roylco's special buttons.

Bar Graph Before displaying the tray, ask children to find a group of (buttons) that are alike in at least one way. Arrange each group of similar buttons in a horizontal line, with each line

parallel to the other lines, so they can be easily compared. Ask thinking questions to encourage discussion:

- How are these buttons different?
- How are these buttons the same?
- Can you find any more buttons to add to this line?
- Explain why you think they go together.



Display the Bar Graph Tray and this time ask children to make lines of similar buttons in the tray. Explain that the tray is a graph and it tells a story about the buttons. Ask them to identify each group with a describing word. (color, size, shape, etc.) Use an open-ended discussion to help children summarize the data they have collected:

- Which group is the largest?
- Which has the fewest buttons?
- Tell how the buttons in each group are the same.
- What name can you give to each group in the graph?

Follow up by encouraging children to play with the tray, reinforcing their new knowledge.

Venn Diagram After

children have become familiar with collecting data in the bar graph tray, invite them to help you with a different way to sort. Display a mixture of buttons or other assorted manipulatives. Ask children to help you make a group of (buttons) that are alike in one way. Then help them work together to make another group of buttons that are alike in another way Use thinking questions to lead children to an understanding of overlapping groups.



- How are all the buttons in this group alike?
- How are the buttons in this other group alike?
- Are there any buttons in the first group that are like any

buttons in the second group?

- Tell how they are the same.

Now display the Venn tray and ask children to help you arrange the two groups in the circles in the graph. Point out the area where the circles intersect and ask:

- Which buttons belong here in both groups?
- Explain why you think that.

Later invite children to make more intersecting groups and to play with what they are learning.

Web Tray

Show children a toy or classroom object that has several attributes. (Example: a small book that is square, has words in it, is made of paper, and has four colors on it.) Discuss all of the attributes by asking children to help you describe the book:



- What can you tell us about the book?
- Name all the colors and shapes you see.
- What do you think it is made of?
- What can you find inside?

Then from a gathered assortment of classroom objects, or by going on a classroom search, ask children to find one object that is the same as the book in one way. (Example: a crayon of the same color, a block of the same shape, a paper with words on it, etc.) Arrange the selected objects around the book and encourage a discussion.

- How is your object like the book?
- How is it different?
- What else can you find that is the same as the book in one way?

Next introduce the Web tray and how it can be used to explain the data they have gathered. Place a new object in the center of the web and ask children to name all its attributes. (Example: a key chain with keys on it.) Invite children to find one other object that is the same as the key chain in one way. Place the related objects in each of the “spokes” of the web as you encourage a discussion:

- How is this like the key chain?
- Is there anything else that can go in the “web”?

Continue until the web is complete. Then help children discuss the relationship among the objects in the web.

- Explain all you know about one object.
- Tell how it is like the key chain.

Follow up by placing the Web Tray and an assortment of small objects at an activity center. Encourage children to explore their new concepts.

Enriching Children’s Learning Ask families to contribute small, SAFE, household objects to keep your sorting collection new and stimulating. (Examples: cups of different colors and sizes, jewelry, clothespins, washers, etc.)

When children have developed their skills in sorting, data collection, and graphing, invite them to reproduce on paper what they have created with the trays. Ask them to use pictures and words to write about their findings.

