Grid Graphs

P.4.10

Word Wall: *data, 'bar graph', map, most, least, more, less, same, 'how many more', 'how many less'*

Introduction

Students will use the 5x5 grid to represent groups of data as bar graphs. Students will use 1 to 1 correspondence to count data sets.

Resources

- Early FISH Cards
- 5 x 5 grid
- Counting materials with five of each category e.g. 5 each of 5 different plastic animals (5 dogs, 5 cats, 5 birds, 5 snakes, 5 monkeys); fruit; coloured stones.
- Pictures of objects (as above); food; toys; objects from favourite story (eg. The Very Hungry Caterpillar)

Time/Classroom Organisation

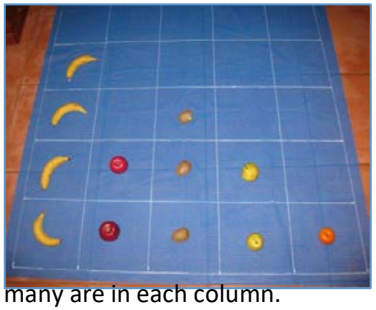
This activity may be introduced in a whole group circle time or in a small group as a 20 minute focused teaching and learning event. Once all students know how to play, the grid can be used in the context of investigations (eg. graphing eye colour); play (materials available) and transitions (how many people preferred apples?)

Australian Curriculum Prep

Answer yes/no questions to collect information and make simple inferences *(ACMSP011)*

Activity Process---Graphs on a 5 x 5 Grid

1. Display 5x5 grid on the floor
2. Choose a category that is relevant to classroom interests, for example: Animals / Healthy food/ Eye Colour/ Number of in Family/Favourite song.
3. Ask the students to pick up the animal/ food they like the most.
4. Discuss how placing their "data" in columns will tell them information about what animal/food is liked the most by the group, and what animal/food is liked the least by the group.
5. Place each animal/food in a different column on the grid.



6. Count how many are in each column.
7. Use language such as:
   - *Which group of animals/food has the most / least?*
   - *Which groups of animals/food have the same amount?*
   - *How many more bananas are there than apples?*
   - *How many pears and kiwi fruit altogether?*
8. Add labels to the graph after it is constructed, to allow students to see where and what the labels name applies to.
9. Add Food/Animal labels across the bottom of the graph (X axis). Add numbers along the side of the graph (Y axis).

Variations & Extensions

1. Outdoor Play Survey:

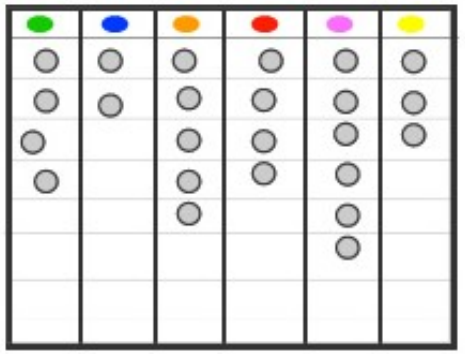
Resources: Pictures of students, map of outdoor area

Display a picture map of the outdoor area showing the outdoor equipment. Have students a>ach a 'self---action figure' (picture of themselves) to the place or the piece of equipment they enjoy using the most. At mat time, ask students to count to see what activity most of them enjoy. Extend this by asking them to look for different information. Ask: What else can we find out? (For example: There are more boys than girls on the slide.)

Source: *First steps in Mathematics – Chance and Data,* 2009. Rigby: Port Melbourne. P 96

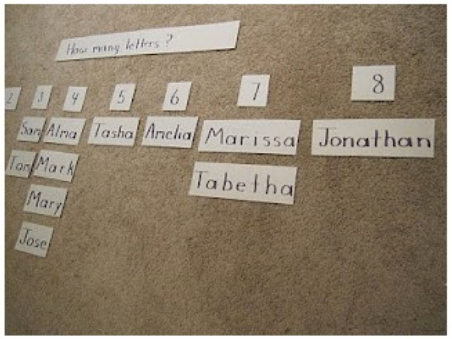
2. Favourite Colour

Resources: Ask students to vote on their favourite colour by shading a dot on the graphing chart. They may on vote once



3. How Many Letters
Resources:
Names of students printed on card
Number cards

Ask:
- How many children have three letters in their name?
- How many children have four letters in their name?



4. How Many?
Use a clothespin graph for a simple daily graphing experience.
Write each student's name on a clothespin that students then use in a classroom data collection activities. This is a simple visual data collection that lends itself to picture cues for younger students or voting type questions

Links to Related MAGs
P.1.10 – Voting Yes/No
P.3.10 – Tally Marks
1.1.10 – Gather Data
1.2.10 – Birthday Data

Variations & Extensions
http://www.ideal---resources.com.au

Pictogram

A flexible program to support the teaching of pictograms. Use the ready-made examples or drag the yellow triangles to display your own data.

http://au.ixl.com/math/kindergarten/making---graphs

Contexts for Learning
Play:
Allow students time to play with the 5x5 gird to create their own graphs.
Investigation:
Read "The Hungry Caterpillar" by Eric Carle. Make a bar graph on the grid to see what the caterpillar ate most / least.
Real life experience:
Birthdays: Ask students to write their birthday month on a piece of card and find students with the same birth month. Ask: *Which month has the most birthdays? How can we find out?* Create a class graph with this information.
Source: *First steps in Mathematics – Chance and Data,* 2009. Rigby: Port Melbourne. P 96
Routines and Transitions:
At snack attack time, create a fruit graph using the fruit that students have bought in to eat. Discuss which fruit there is the most/least of.

Assessment
Observe students:
- Asking and answering simple questions
- Counting using 1 to 1 correspondence
- Use of concepts most, least, more, less, same
- Counting collections
- Counting: How many more? How many less?

Achievement Standard: answer simple questions to collect information.

Ice Cream Scoops Activity
Resources: Dice, Ice Cream cards

Student rolls a die to randomly select a scoop colour
on it from the pile.
Roll the die and count the dots.
Choose that number of ice cream scoops in the colour indicated and assemble the ice cream cone.

Next player rolls.
Play continues until all scoops are gone.

Students discuss how they will know who has the best ice cream cone?
How can they make the game more interesting? Eg add m and m's, fruit, sprinkles etc
Students arrange ice cream cones to create simple graph and the class votes on the one they like best.

Background Reading
The notion of representing an object with a different abstract and often difficult for students. Using actual objects is an important step towards this e.g. Using actual fruit compared to using counters to represent the fruit.
Source: Eva deVries 2008