SCIENCE NORTH SCIENCE NORD
SUDBURY, ONTARIO, CANADA

Pushing and Pulling **Grades 2 to 4**

Create a Bar Graph – Pre Activity

Assessment	graphing
Cross-curricular	Mathematics

Big Ideas
50 minutes

Specific Expectations

1. Use a variety of forms (oral, written, graphic) to communicate with different audiences (Grade 2 – 2.6).
    a. Identify the parts of a graph
    b. Read and interpret graphs

Description
Students will gather information and present this information in a bar graph; they will be able to interpret their bar graphs and explain their conclusions to others.

Materials
- Paper (graph paper preferred but not necessary)
- Pencils
- Rulers
- Coloured pencils
- Small, countable objects (optional)

Safety Notes

Introduction

1. Introduce students to bar graphs and explain how they can be used to visually display information;
2. Discuss the components of a bar graph (axes, bars) and how to interpret a bar graph.

Action

1. Students (working individually or in small groups) are given kits containing a mixture of small countable items - these are items that the students should be able to sort and classify, either according to set, colour, etc. Have at least three groupings of objects per kit.
2. Students will separate objects into their separate groupings and record the number of objects in each grouping.
3. Students will then present their findings in a bar graph with type of object on the x-axis, and number of objects on the y-axis.

Alternative graphing activity:

1. Have students work individually or in small groups. Assign different traits for the students to record (hair colour, height, eye colour). Have the students record their observations of this trait in their classmates (e.g., count and record how many classmates have brown eyes, blue eyes, hazel eyes...)
2. Have students present their findings in a bar graph, with the category of the trait on the x-axis (e.g. eye colour) and the number of students with that trait on the y-axis.

Consolidation/Extension

1. Have students talk about the results they each observed and interpret their bar graphs for the class.
2. Recap the components of a bar graph and ensure that students understand how to interpret the data.

In the Pushing and Pulling school program, students will be using a computer program (LoggerLite) to create a bar graph that compares three pulley systems in terms of effort required to lift a load (measured in Newtons). Students are not required to have experience with this program (the interface is a simple start/stop button), but they should be familiar with how to interpret a bar graph (i.e., individual bars represent entries, taller bars mean that more effort was used to lift the load, shorter bars mean less effort was used).