



ACTIVITY:

Making Graphs with *S^knowledge* Data

Overview

Themes of measurement, data management, and data visualization are woven through the math curriculum. Students will develop survey techniques to collect primary data through observing, recording and submitting observations into the *S^knowledge Collective* portal. Here you'll find several examples of different types of charts and graphs that students can use to graph/chart their *S^knowledge*. In later grades, students can calculate measures of central tendency (e.g. mean, median, and mode).

Objective

Upon completion of this activity, students will understand the necessary elements (e.g. labels, scale, title, axis, legend) needed for different types of graphical representations of data (e.g. tally chart, pictograph, bar, double-bar, line, double-line, scatter plots) relevant to their grade level. Students will begin to discuss patterns, trends, and explore the relationships between variables.

Materials



Data Spreadsheet Template: [Microsoft Excel File¹](#)
























Pictograph worksheet (Last page of this document →)

¹ Microsoft Excel File: sknowledge.ca/files/theme/Worksheet_SkNOWLEDGECO_Spreadsheet.xlsx

Graph Examples





01. PICTOGRAPH

Create a pictograph using the snow on ground, and cloud cover variables. For each date of observation collection, update the pictograph to add the most recent data. Discuss patterns that reveal themselves in the data. See the last page of this document for a student worksheet.

Month	Snow	Full Sun	Cloud Cover Mix of Sun & Clouds	Full Cloud Clover
November				
December				
January				
February				
March				
April				
May				

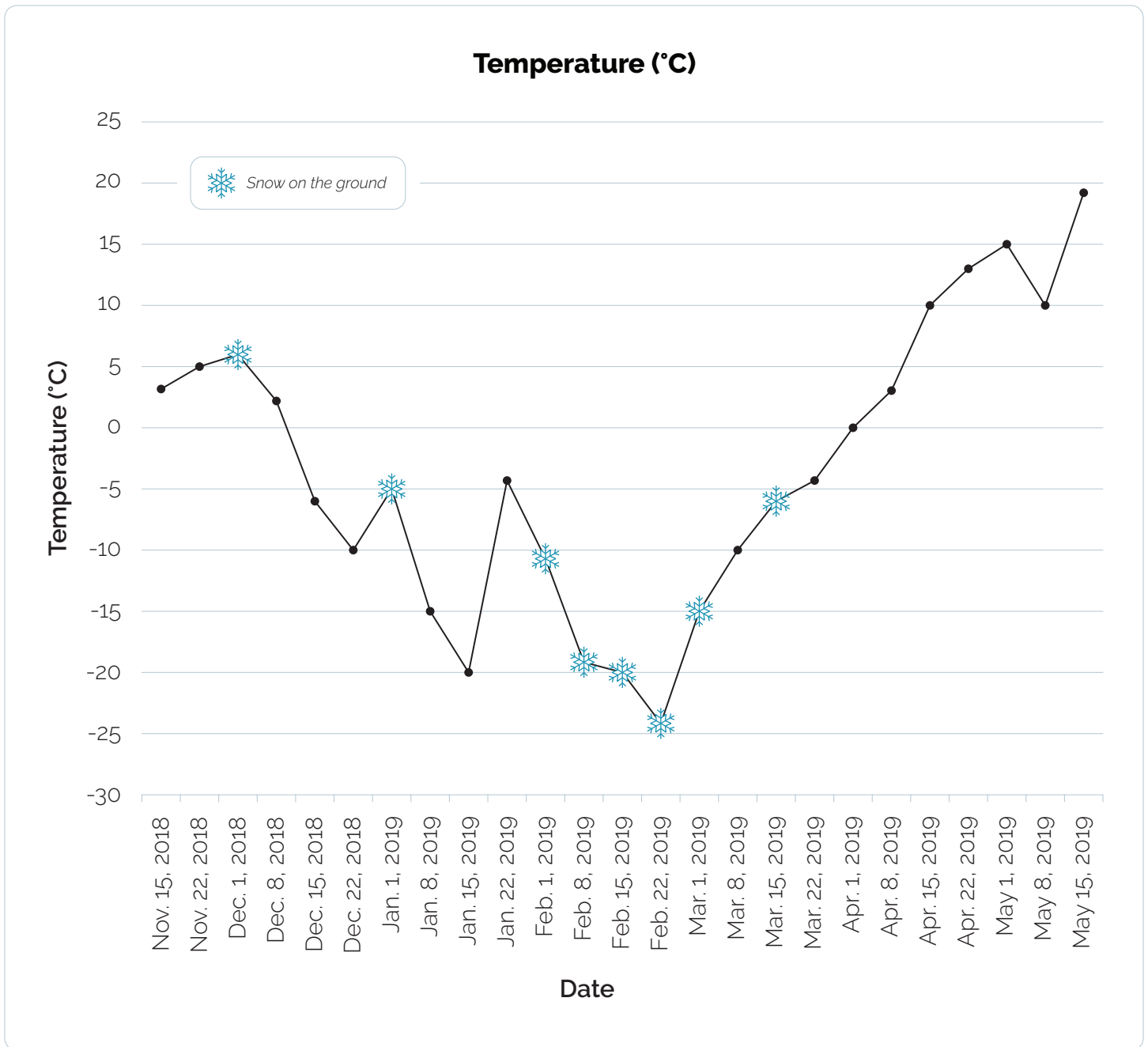
02. TALLY CHART

Have students record their observations in the form of a tally chart, then report the totals for each weather variable they are observing.

Days with snow on the ground	 = 10 days
Days with full sun	 = 2 days
Days with full cloud cover	 = 10 days
Days with a mix of sun a cloud	 = 8 days

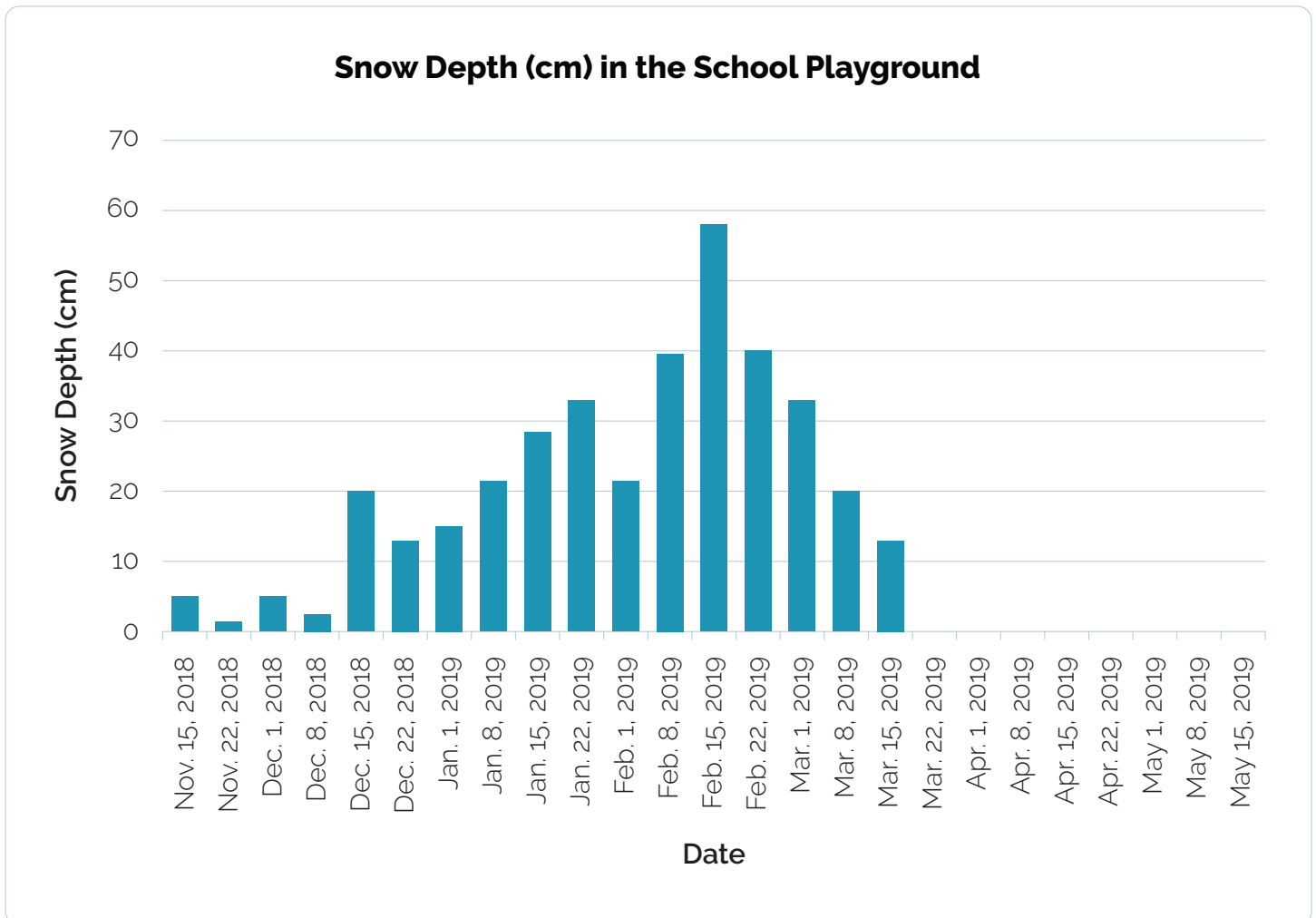
03. LINE GRAPH

Plot the temperature in degrees Celsius (°C) for each of the dates you collect observations on a line graph. Use icons, symbols, or different colours to identify dates when there is snow versus no snow on the ground, or the type of cloud cover observed.



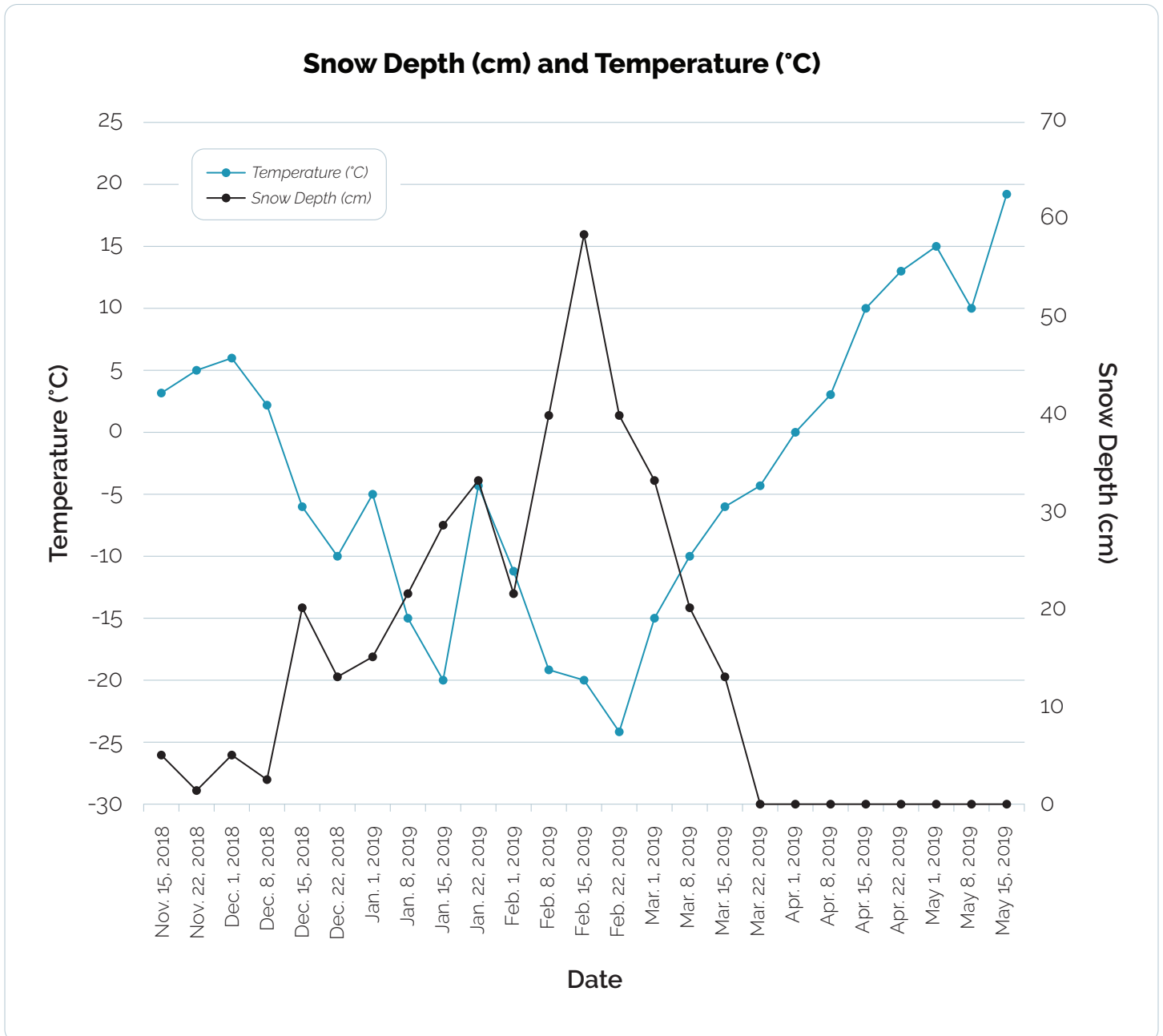
04. BAR GRAPH

Plot the snow depth in centimetres (cm) or temperature ($^{\circ}\text{C}$) on each of the dates you collect observations using a bar graph. You can also use icons, symbols, or different coloured bars to symbolize the different cloud cover, or above or below zero temperature, on each of the dates. Students can report on the measures of central tendency for their observations by creating a data table and calculating mean, median, and mode of the charted data.



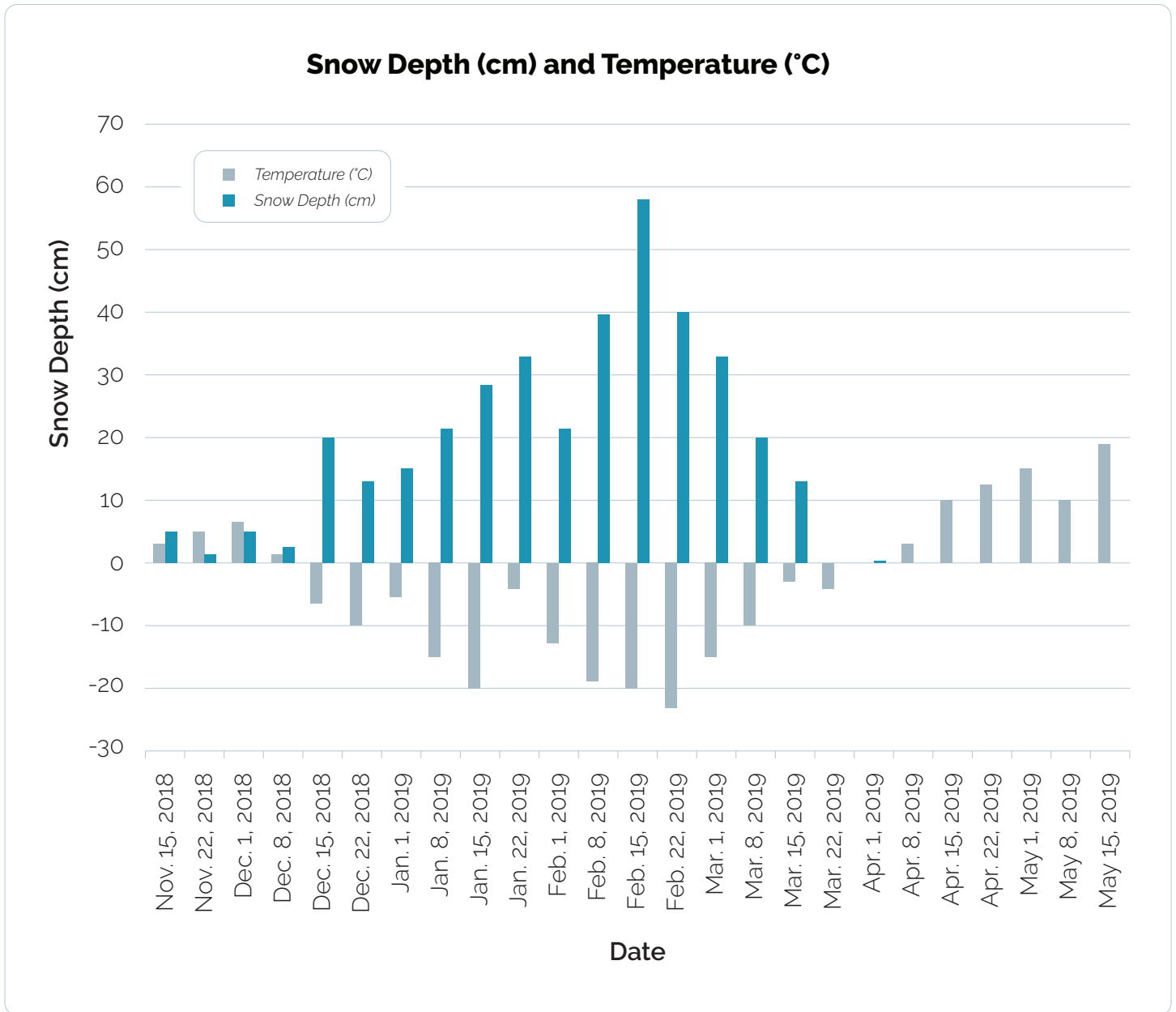
05. DOUBLE-LINE GRAPH

Using a table of the data from throughout the winter months, have students plot, on a double-line graph, the snow depth (cm) on one axis, and the temperature (°C) on the secondary axis. Symbolize the different variables using a different colour. Students can report the measures of central tendency for their observations from the data table.



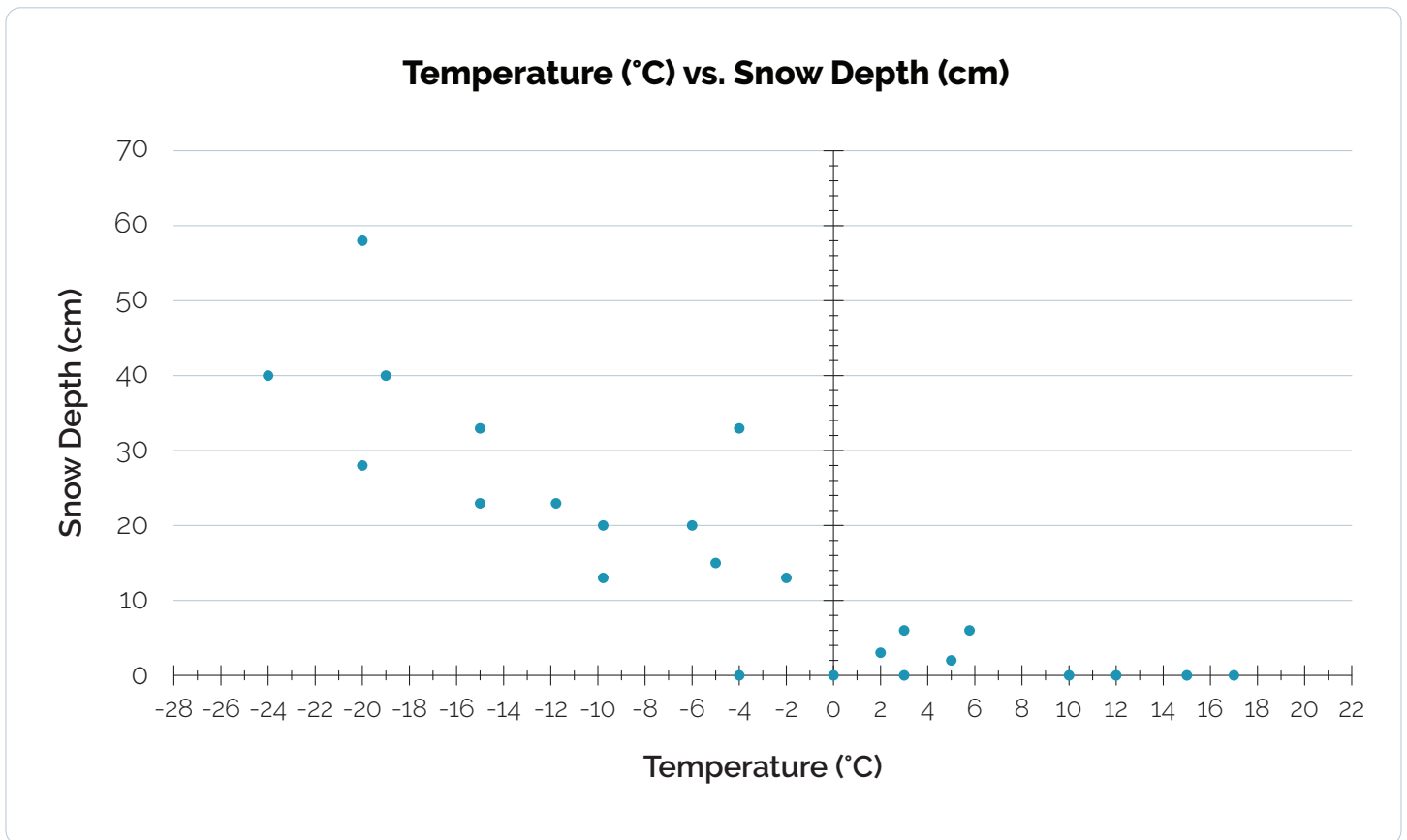
06. DOUBLE-BAR GRAPH

Have students plot, on a double-bar graph, the snow depth (cm) and the temperature ($^{\circ}\text{C}$) for each of the dates they record snow observations. Symbolize each of the variables using a different colour. Students can report the measures of central tendency for each of the variables by creating a data table of their observations.



07. SCATTER PLOT

To explore the relationship between two variables, have students plot, on a scatter plot, the snow depth (cm) and temperature ($^{\circ}\text{C}$) for each of the dates they record snow observations. Identify the trends observed in the plots, are they increasing? Decreasing? Is there a relationship between variables at all?



My *S^k*nowledge Pictograph

Use a snowflake to record each day you see snow on the ground outside.

Name: _____

Month	Snow ❄️
November	
December	
January	
February	
March	
April	
May	

QUESTIONS

01. How many days was there snow on the ground outside? _____
02. What month had the most days with snow on the ground? _____