Chapter 4
Lesson 6

Solving Problems by Creating Diagrams

You will need
- 1 cm grid paper
- pencil crayons
- a ruler

GOAL

Use diagrams, charts, or graphs to solve problems.

There are two intersections near Matthew's school. The city council wants to install traffic lights at the busier intersection.

At which intersection should the traffic lights be installed?

Matthew's Solution

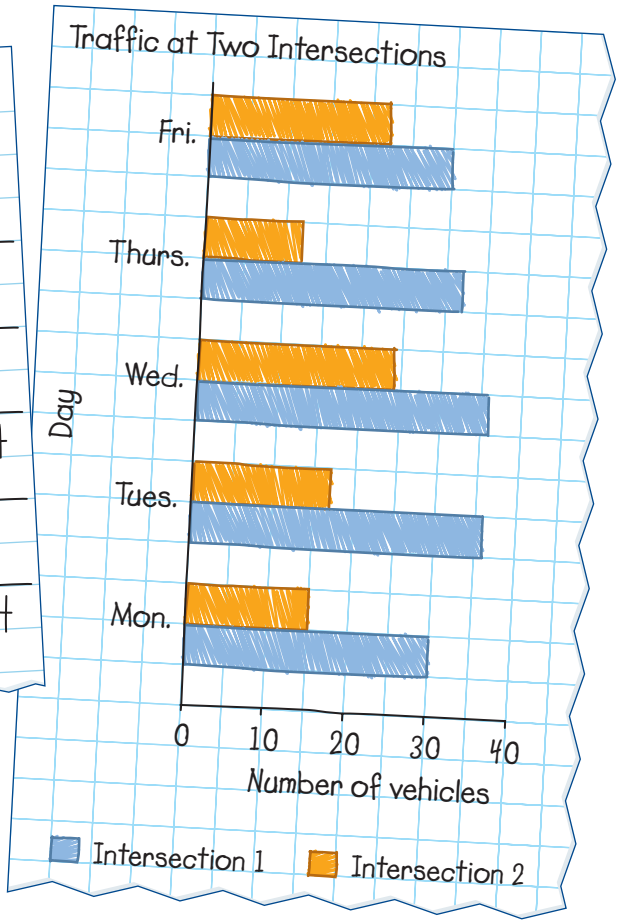
Understand
I need to know which intersection has more traffic.

Make a Plan
My friends and I will count the number of vehicles that go through the two intersections for 15 minutes before school and 15 minutes after school. I'll record the data in a tally chart. Then I'll make a double-bar graph and analyze my graph.

Carry Out the Plan

Traffic at Two Intersections

Day	Number of vehicles at Intersection 1	Number of vehicles at Intersection 2
Mon.	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸
Tues.	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |	𝍸 𝍸 𝍸 ||
Wed.	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |	𝍸 𝍸 𝍸 𝍸 𝍸 ||||
Thu.	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||	𝍸 𝍸 ||
Fri.	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 ||



On all five days, there is more traffic at Intersection 1.
The traffic lights should be installed at Intersection 1.

Reflecting

A. How do you think Matthew decided how many columns and rows he needed in his tally chart?

B. Would you use Matthew's tally chart or his double-bar graph to show where to install the traffic lights? Explain your choice.

Checking

1. The Grade 1 students are planning a field trip. They will have to cross a busy road, so they want to cross when the traffic is the lightest. Should they go on the field trip in the morning or the afternoon?
   a) Describe how you would make the decision.
   b) Would putting the data in a bar graph make the results easier to see? Explain your thinking.

Practising

2. Two classes are deciding where to go for a field trip. All the students voted. In Class 5A, 9 students voted for the science centre, 11 for the museum, 4 for the art gallery, 2 for city hall, and 4 for the courthouse. In Class 5B, 7 voted for the science centre, 14 for the museum, 6 for the art gallery, and 6 for city hall. They can only go to one place. Where should they visit?
   a) Organize the data so the problem is easier to solve.
   b) Where should the classes go? Give reasons.

3. A breakfast program provides cereals with at least 2 g of fibre and no more than 10 g of sugar in each serving. What four cereals should be provided?
   a) Make a plan to solve the problem.
   b) Collect the data and organize it in a chart.
   c) Solve the problem by constructing and analyzing a double-bar graph.

4. Star wants to know whether the population of the Prairie provinces is growing more quickly than the population of the Atlantic provinces.
   a) What data does she need to collect?
   b) Collect the data and organize it in a chart.
   c) Construct a double-bar graph and use it to solve the problem.

5. Make up a problem involving data collection that you could solve using a diagram, chart, or graph. Explain why a diagram, chart, or graph would be helpful.