Getting to work

Purpose:

The purpose of this activity is to engage students in making links between displays of data and the conclusion drawn by others.

Achievement Objectives:

S1-2: Interpret statements made by others from statistical investigations and probability activities.

Description of mathematics:

In readiness for this problem, the students should have familiarity with each of the following components of mathematics. The problem may be solved with different combinations of these components.

- Carrying out an investigation
- Investigating to answer a (statistical) question
- Posing a (statistical) question
- Considering possible responses to a (statistical) question

This activity may be carried out with guidance, or by allowing the student to follow their own chain of reasoning. The approach should be chosen in sympathy with students' skills and depth of understanding. The most likely form of feedback/evidence from the student in this activity is via discussion.

Activity:

A class took home a survey to find out how their parents travel to work.
They got 24 responses. All the other parents didn't commute to work or didn't respond to the survey.

They matched each of their responses with a transport sorting shape and discussed the responses.
The transport options were car, bus and train.

The class came up with the conclusion:
The most common way our parents get to work is by car.

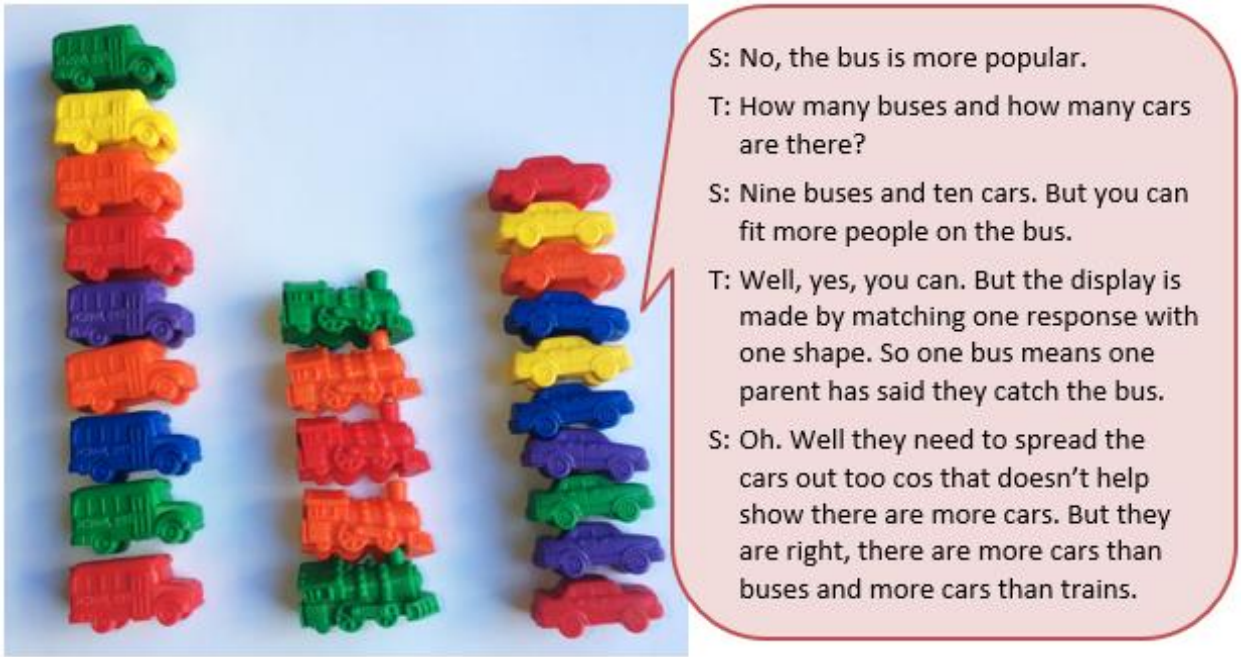
Explain how their arrangement of transport shapes shows this.

The procedural approach

The student is able to make links between data displays and the conclusion drawn.

Prompts from the teacher could be:

1. What does the display show about the number of responses for travelling by bus?
2. What does the display show about the number of responses for travelling by train?
3. What does the display show about the number of responses for travelling by car?
4. Which type of transport had the most number of responses?
5. What did the class say they found out?
6. Do you agree with their conclusion?



The conceptual approach

The student is able to make links between data displays and the conclusion drawn and suggest possible improvements to either.

Prompts from the teacher could be:

1. What does the display show about the number of responses for travelling by each type of transport?
2. What did the class say they found out?
3. Do you agree with their conclusion?

S: I agree with their conclusion but only just.

T: Why is that?

S: Well, there are more parents who drive to work than bus ... even though the cars are scrunched up when you count them, there's one more.

T: And is that the most popular way of commuting?

S: Only by one person. It could easily be that a bus catcher hasn't handed their answer in yet and that would make it the same number.

T: But we can't make guesses, we can only work with the responses that were collected.

S: Okay, but 9 and 10 are really close. If the class said that more parents use public transport that would be better.

T: So, by public transport, you mean ...

S: Trains and buses. They are kind of the same thing. There's 14 parents on public transport and ten in cars. That's a bigger difference so that's the conclusion I would make.