

Sleepy heads

Annotation

Simone notices something interesting in the data she is given (different bedtimes and wake times), which leads her to pose an “I wonder” question. She turns this into an investigative question that she can answer using statistical data. Her question is a summary question because it requires a summary or descriptive answer for a group of data (Simone’s class).

Simone collects and collates whole-number data to answer her question. She displays her results using a stem-and-leaf graph, a tally chart (or frequency table) and a bar graph. All these displays help Simone answer her question. Simone indicates she could also have used a dot plot to display this data.

Simone communicates her findings in context and can draw an appropriate conclusion to answer her question. She explores other interesting information from her data.

Problem: Sleepy heads

The students in Room 9 have just participated in CensusAtSchool New Zealand. The teacher gives them a copy of their class data and asks them to complete the following task:

Pose an investigative question to explore this data and carry out your statistical investigation.

Bedtime	Wake time	Bedtime	Wake time
9.15 p.m.	6.45 a.m.	8.00 p.m.	7.00 a.m.
10.00 p.m.	6.00 a.m.	10.00 p.m.	8.00 a.m.
8.30 p.m.	7.30 a.m.	9.00 p.m.	7.15 a.m.
8.00 p.m.	7.15 a.m.	9.30 p.m.	6.00 a.m.
7.45 p.m.	7.00 a.m.	9.00 p.m.	7.15 a.m.
9.45 p.m.	5.45 a.m.	8.30 p.m.	7.00 a.m.
8.30 p.m.	6.30 a.m.	11.15 p.m.	7.30 a.m.
9.00 p.m.	7.00 a.m.	10.00 p.m.	6.45 a.m.
8.15 p.m.	7.15 a.m.	8.30 p.m.	6.30 a.m.
9.15 p.m.	7.45 a.m.	8.00 p.m.	4.30 a.m.
8.00 p.m.	7.00 a.m.	8.45 p.m.	6.15 a.m.
9.00 p.m.	7.30 a.m.	8.00 p.m.	7.00 a.m.
8.00 p.m.	7.00 a.m.	9.30 p.m.	8.00 a.m.

Student Response

Simone's work sample is as follows:

How much sleep did students in our class get last night?

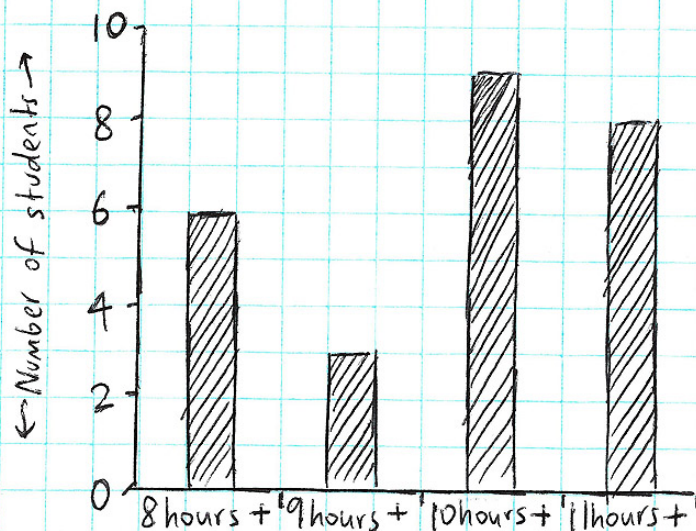
Total hours sleep	10 hours	11 hours	8 hours 45
9 hours	10 hours	10 hours	10 hours
8 hours	11 hours	10 hours 15	8 hours 30
11 hours	10 hours 30	8 hours 30	9 hours 30
11 hours 15	11 hours	10 hours 15	11 hours
11 hours 15	10 hours 30	10 hours 30	9 hours 45
8 hours	11 hours	8 hours 15	

Stem and Leaf Graph of the hours of sleep students in our class got last night:

Hours	Minutes
8	00 00 15 30 30 45
9	00 30 45
10	00 00 00 00 15 15 30 30 30
11	00 00 00 00 00 00 15 15

Sleep time	Tally	Frequency
8 hours +	1	6
9 hours +		3
10 hours +		9
11 hours +		8

Amount of Sleep Students in Room 9 Had Last Night



Conclusion:

Most students in Room 9 got ten hours or more sleep last night. A few students got only around 8 hours of sleep. Four students had a very late bedtime (after 10 pm) and one student got up as early as 4:30 am.

Teacher: Can you tell me what you did?

Simone: Well the teacher gave us all the answers to our CensusAtSchool questions, and I noticed that we all had different bedtimes and wake times. It made me wonder how much sleep people had last night. So first I copied down the bedtimes and wake times, so then I could count how many hours of sleep they had. I looked at the classroom clock to help me.

Teacher: What else did you do?

Simone: I made a tally chart so I could group the numbers. That was so I could make the graph more easily.

Teacher: Could you have done it a different way?

Simone: I could have done a dot plot instead.

Teacher: What did you find out?

Simone: Most people got 10 hours or more sleep, but there are a few people in the class who only got about 8 hours - which isn't enough!