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# Lesson 6.5 Problem Solving with Data

When a scientific question is identified, data can be collected based on an experiment. Then, the data can be compared using statistics.

Maria wants to know how much time she should spend studying for a test. She asks 15 classmates how long they studied for their last tests and then asks them how they scored on their tests. Here is the information she gathered:

| | |
|---|---|
| Studied 0–2 Hours | 80, 82, 90, 94, 85, 78, 82, 84 |
| Studied More than 2 Hours | 92, 94, 96, 88, 85, 90, 98 |

**Studied 0–2 Hours**

| Stem | Leaf |
|---|---|
| 7 | 8 |
| 8 | 0 2 2 4 5 |
| 9 | 0 4 |

**Studied More than 2 Hours**

| Stem | Leaf |
|---|---|
| 8 | 5 8 |
| 9 | 0 2 4 6 8 |

The mean score for the students who studied 0–2 hours is 84.38, and the mean for the students who studied 2 or more hours is 91.86. So, students who studied 2 or more hours had better results overall than students who studied 0–2 hours. For Maria to have the best possible result on her next test, she should study for 2 or more hours.

Analyze the data sets below to make an inference about the situation.

**1.** Robert wants to know how many hours of light are best for growing tomato plants. He plants 20 tomato plants that are all close together in height. He gives one group of 10 plants 4 hours of light every day and gives the other 10 plants 10 hours of light every day. He measures them at the end of 3 weeks to find out how much each plant has grown.

| | |
|---|---|
| Growth for 4-hour plants (in.) | 3, 5, 5, 6, 4, 6, 3, 4, 6, 4 |
| Growth for 10-hour plants (in.) | 9, 10, 12, 8, 10, 11, 9, 8, 8, 9 |

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**2.** Cheri wants to find out how different activities affect tablet battery life. She tested 10 of the same tablet with full batteries. She had one group watch videos until the battery ran out. She had the other group play a game until the battery ran out. She measured how long it took each tablet battery to run out.

| | |
|---|---|
| Battery life with videos (hr.) | 5.4, 5.6, 6.0, 5.9, 5.6 |
| Battery life with game (hr.) | 7.6, 7.7, 7.7, 7.3, 7.4 |

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