

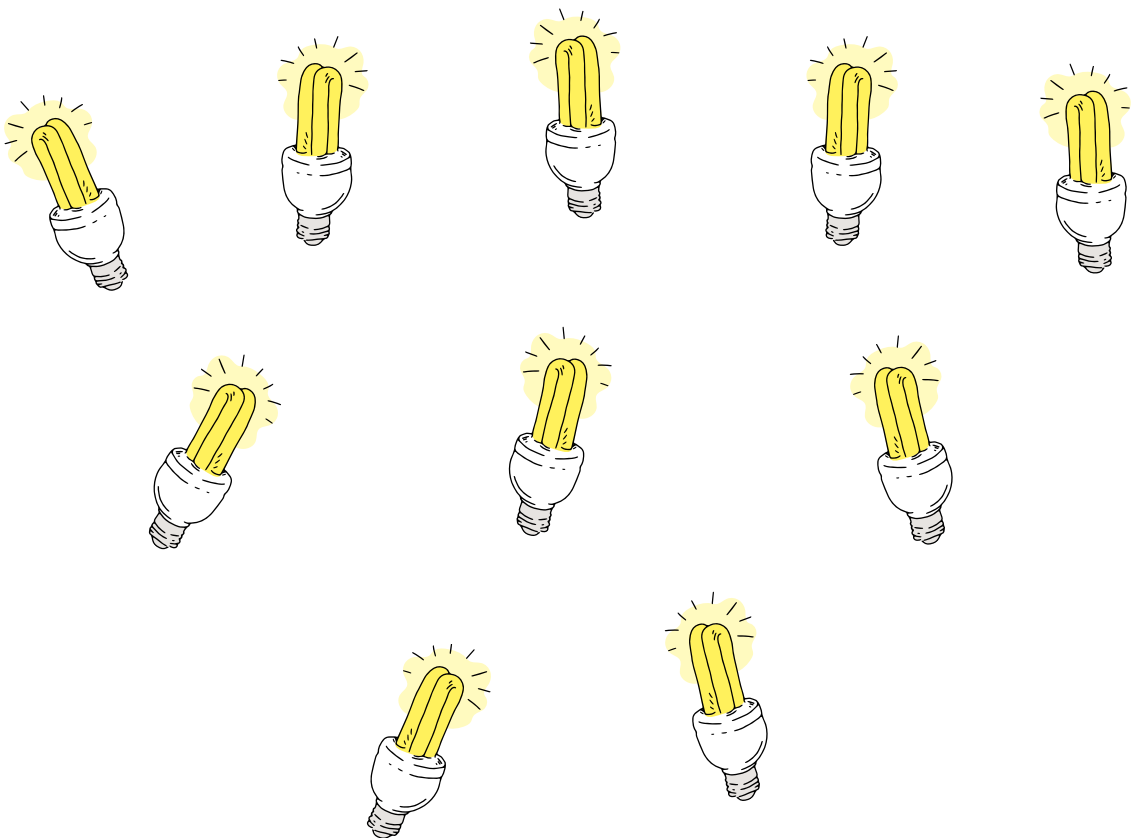
SOLAR PANEL POWER!

We need your help!

We love the fact that we can generate our own renewable electricity so we have a more sustainable source of power. Our solar panels have been busy generating electricity and we want to tell people all about it. **Can you help us organise the data?**

What is a kWh?

This means Kilowatt hour. To understand what a kilowatt hour is, imagine ten 100 watt lightbulbs all switched on for one hour. Energy bills are measured in kWh.



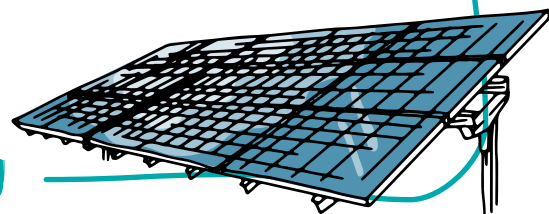
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Section A: Readings from the main entrance shop building solar panels..

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------|------|------|--------------|--------------|--------------|------------|
| January | | | 41 | 31 | 37 | 32 |
| February | | | 76 | 86 | 71 | 69 |
| March | | | 93 | 115 | 138 | 112 |
| April | | | 123 | 167 | 195 | |
| May | | | 210 | 190 | 229 | |
| June | | | 216 | 146 | 161 | |
| July | | | 193 | 163 | 149 | |
| August | | | 142 | 160 | 141 | |
| September | | | 122 | 126 | 138 | |
| October | | | 84 | 78 | 65 | |
| November | | | 41 | 36 | 39 | |
| December | | | 25 | 35 | 27 | |
| kWh | | | 1,366 | 1,333 | 1,389 | 213 |

Now have a go at these questions:

- 1 How many kWh did the solar panels generate in April 2020?
- 2 How many kWh did the solar panels generate in October 2018?
- 3 Since January 2018 how many months have panels generated over 100 kWh?
- 4 Which year did the solar panels generate the most energy?
- 5 Judging from the amount of energy generated by the solar panels, which month was the sunniest?
- 6 Which month was the least sunny? (hint this will be the month with the lowest kWh)
- 7 How many kWh did the solar panels produce in the summer months (June, July and August) of 2019?
- 8 How many months in 2019 did the solar panels produce an even number of kWh?
- 9 Which would be the best way to display this data?



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Section B: Readings from the office building solar panels...

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------|---------------|---------------|---------------|---------------|---------------|--------------|
| January | 1,009 | 1,091 | 2,417 | 1,613 | 1,845 | 1,553 |
| February | 3,205 | 1,627 | 4,031 | 4,228 | 3,117 | 4,368 |
| March | 4,899 | 4,622 | 5,017 | 6,892 | 3,699 | 3,910 |
| April | 7,665 | 7,958 | 8,444 | 10,413 | 10,688 | |
| May | 10,047 | 8,024 | 15,755 | 11,501 | 9,276 | |
| June | 7,554 | 7,174 | 15,325 | 11,363 | 4,695 | |
| July | 7,549 | 14,405 | 13,659 | 10,636 | 9,143 | |
| August | 8,264 | 11,187 | 8,994 | 7,553 | 7,933 | |
| September | 5,700 | 8,029 | 5,516 | 7,167 | 3,322 | |
| October | 3,792 | 4,043 | 1,920 | 4,239 | 1,598 | |
| November | 2,142 | 2,725 | 1,860 | 1,620 | 2,272 | |
| December | 1,201 | 1,455 | 1,126 | 1,699 | 1,372 | |
| kWh | 65,044 | 74,357 | 86,084 | 80,943 | 60,980 | 9,831 |

Now have a go at these questions:

- 1 How many kWh did the solar panels generate in April 2020?
- 2 How many kWh did the solar panels generate in 2018?
- 3 Since January 2018 how many months have panels generated over 10 000 kWh?
- 4 Which year did the solar panels generate the most energy?
- 5 Judging from the amount of energy generated by the solar panels, which month was the sunniest?
- 6 Which month was the least sunny?
- 7 What is the mean value for electricity generated in January since 2018?
- 8 What is the range of electricity generated in 2016?
- 9 How many kWh did the solar panels produce in the summer months (June, July and August) of 2019?
- 10 If you were CEO of Chester Zoo and wanted to run a virtual reality event at the zoo but didn't want to pay lots for the electricity bill, which month would you choose and why? (Hint, first think about which months generate the most electricity and then think about which times of year people want to visit an outdoor attraction)

SOLAR PANEL POWER!

Answers for Section A: Readings from the main entrance shop building...

- | | | | |
|---|----------|---|--|
| 1 | 194 | 6 | December 2018 |
| 2 | 84 | 7 | 469 |
| 3 | 21 | 8 | 7 (Feb, May, June, Aug, Sep, Oct, Nov) |
| 4 | 2020 | 9 | Line graphs or bar charts |
| 5 | May 2020 | | |

Answers for Round Two

- 10,688
- 86,084
- 8
- 86,084 in 2018
- May 2018
- Jan 2016
- 1857
- The range (10,047 - 1,009) is 9038
- 29,552
- May-Aug all acceptable answers due to more likely attendance in summer holidays and more energy being generated due to the sunnier weather.

