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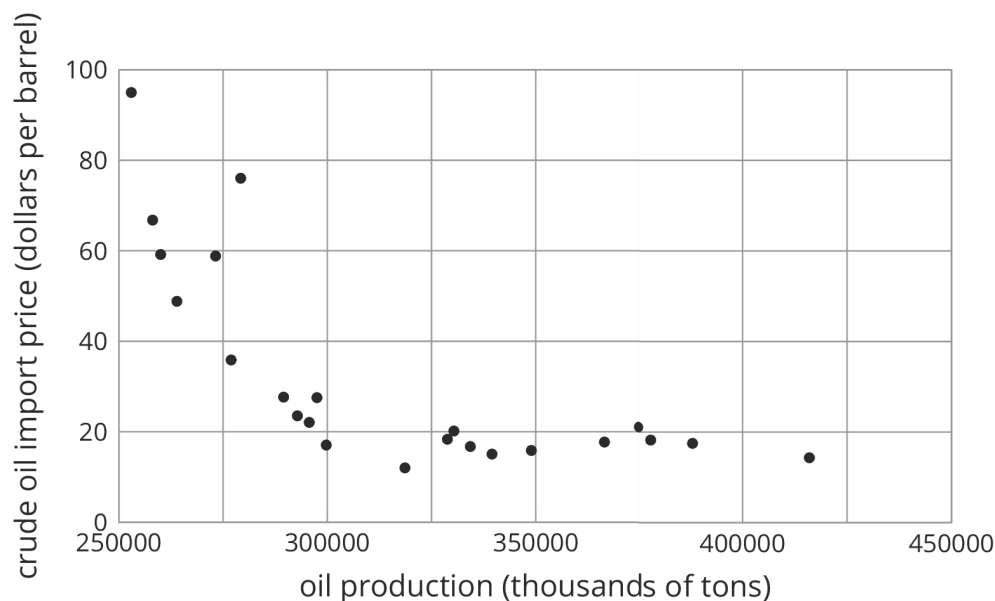
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Unit 6, Lesson 7: Observing More Patterns in Scatter Plots

Let's look for other patterns in data.

7.1: Notice and Wonder: Nonlinear Scatter Plot

What do you notice? What do you wonder?



7.2: Scatter Plot City

Your teacher will give you a set of cards. Each card shows a scatter plot.

1. Sort the cards into categories and describe each category.
2. Explain the reasoning behind your categories to your partner. Listen to your partner's reasoning for their categories.
3. Sort the cards into two categories: positive associations and negative associations. Compare your sorting with your partner's and discuss any disagreements.
4. Sort the cards into two categories: linear associations and non-linear associations. Compare your sorting with your partner's and discuss any disagreements.

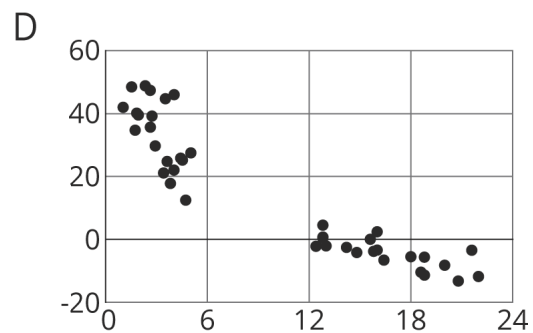
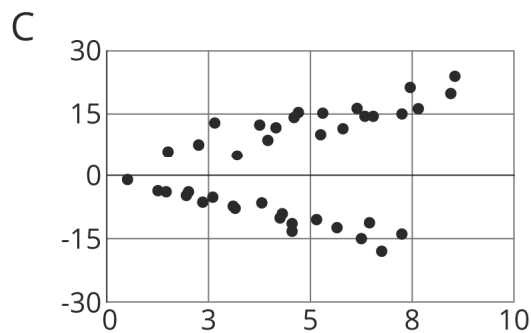
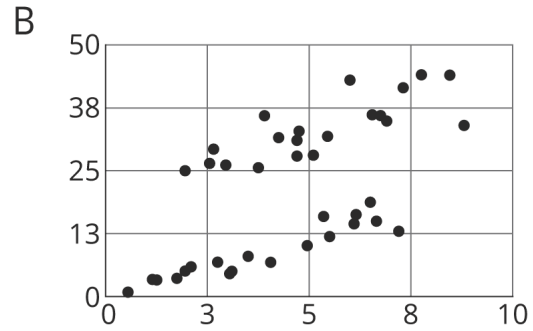
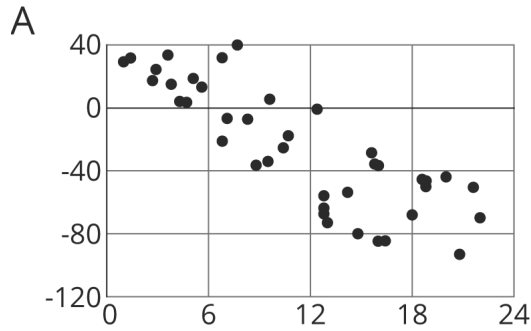
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7.3: Clustering

How are these scatter plots alike? How are they different?



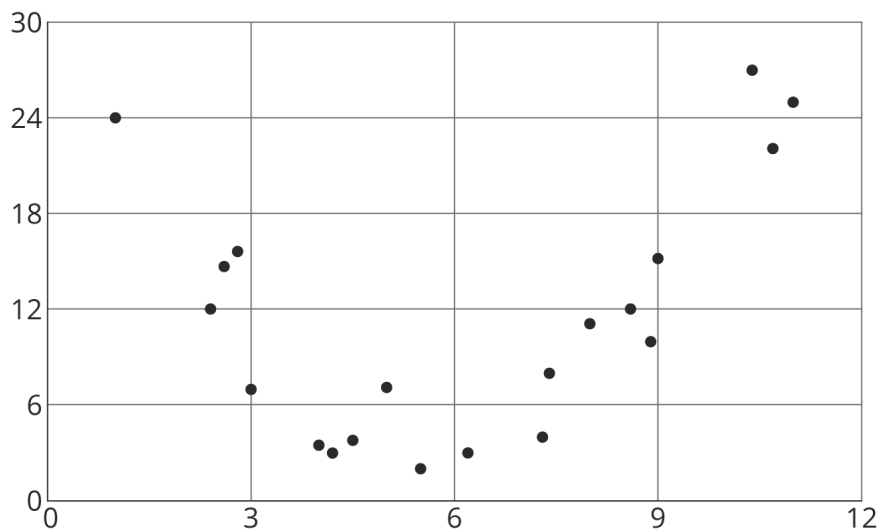
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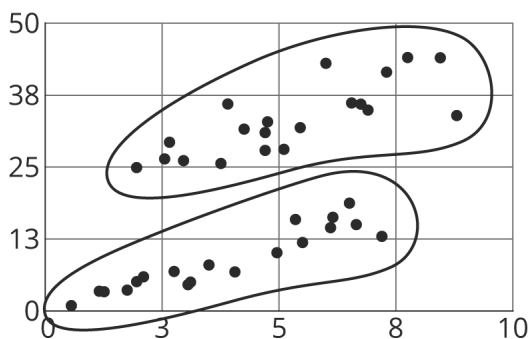
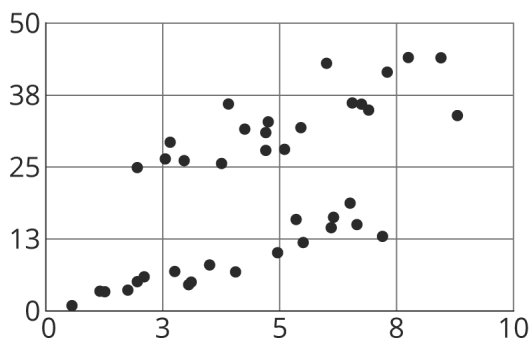
Lesson 7 Summary

Sometimes a scatter plot shows an association that is *not* linear:



We call such an association a *non-linear association*. In later grades, you will study functions that can be models for non-linear associations.

Sometimes in a scatter plot we can see separate groups of points.



We call these groups *clusters*.

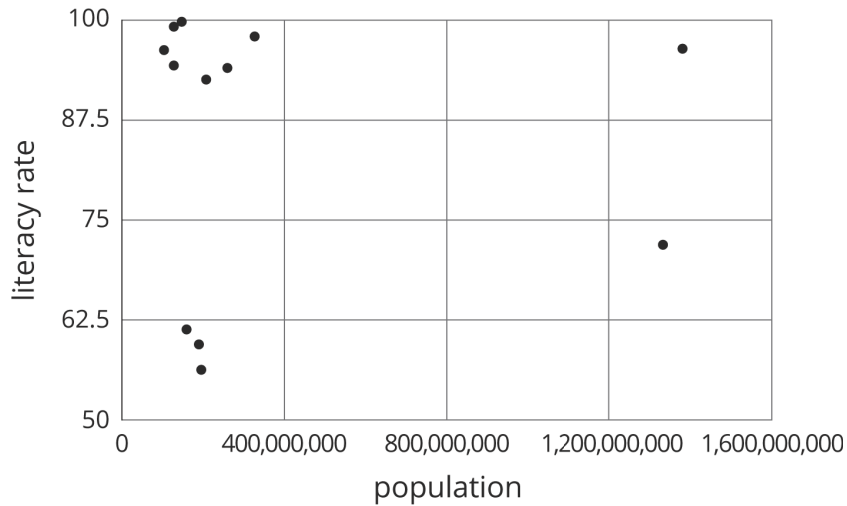
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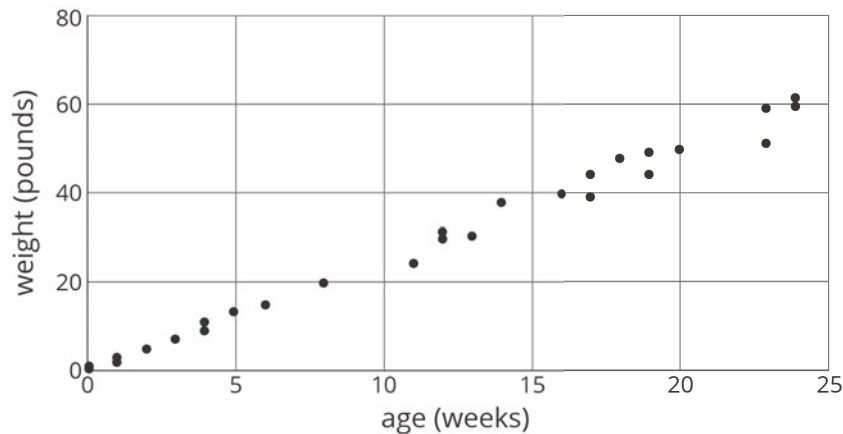
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Unit 6, Lesson 7: Observing More Patterns in Scatter Plots

1. Literacy rate and population for the 12 countries with more than 100 million people are shown in the scatter plot. Circle any clusters in the data.



2. Here is a scatter plot:



Select **all** the following that describe the association in the scatter plot:

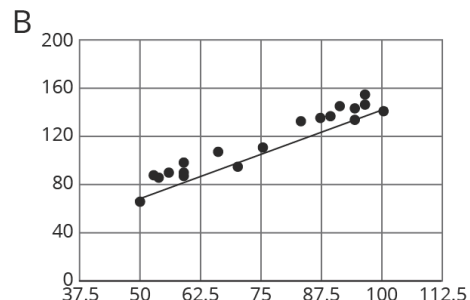
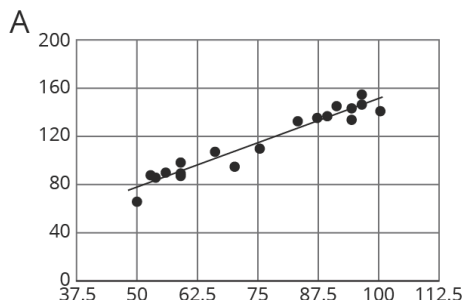
- A. Linear association
- B. Non-linear association
- C. Positive association
- D. Negative association
- E. No association

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3. For the same data, two different models are graphed. Which model more closely matches the data? Explain your reasoning.

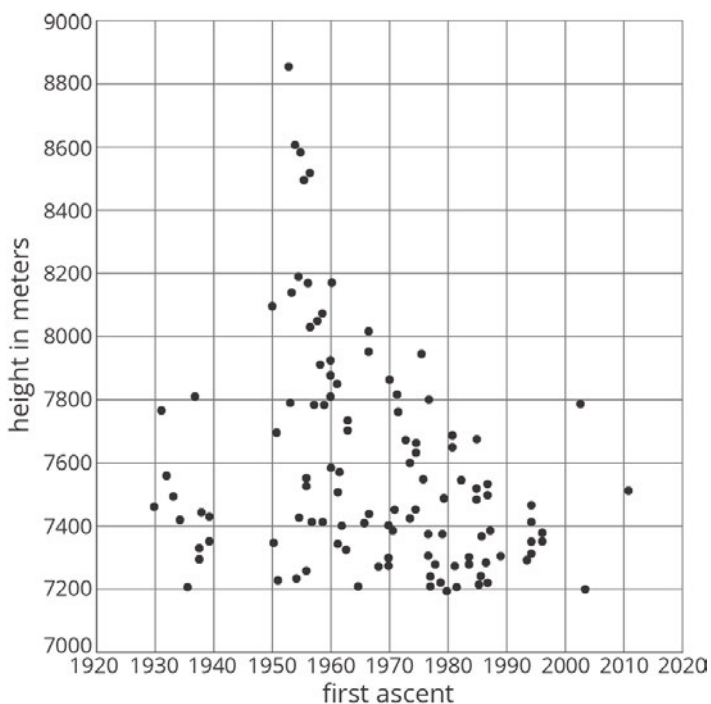


(from Unit 6, Lesson 5)

4. Here is a scatter plot of data for some of the tallest mountains on Earth.

The heights in meters and year of first recorded ascent is shown. Mount Everest is the tallest mountain in this set of data.

- Estimate the height of Mount Everest.
- Estimate the year of the first recorded ascent of Mount Everest.



(from Unit 6, Lesson 3)

5. A cone has a volume V , radius r , and a height of 12 cm.

- A cone has the same height and $\frac{1}{3}$ of the radius of the original cone. Write an expression for its volume.

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b. A cone has the same height and 3 times the radius of the original cone. Write an expression for its volume.

(from Unit 5, Lesson 18)