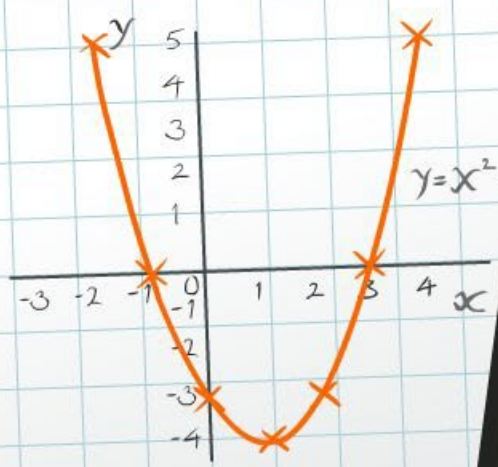
The mode

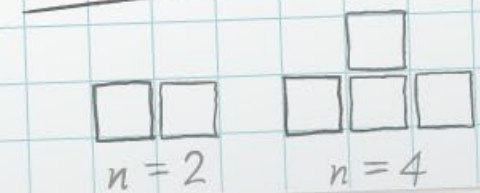
x	-2	-1	0	1	2	3	4
y	5	0	-3	-4	-3	0	5

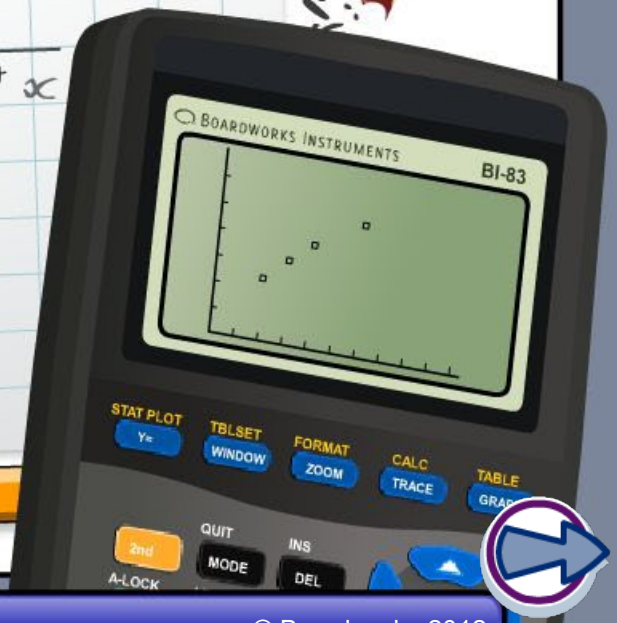
$x^2 - 2x - 3 = 0$

$(x+1)(x-3) = 0$

$x = -1$ or $x = 3$







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Information

Common core icons

This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.

Slides containing examples of mathematical modeling are marked with this stamp.

This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

They are:

1) Make sense of problems and persevere in solving them.

2) Reason abstractly and quantitatively.

3) Construct viable arguments and critique the reasoning of others.

4) Model with mathematics.

5) Use appropriate tools strategically.

6) Attend to precision.

7) Look for and make use of structure.

8) Look for and express regularity in repeated reasoning.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

This icon indicates teacher's notes in the Notes field.

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The most popular destination

This graph shows the destinations of U.S. vacations in 2011.

Which is the most popular destination?

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The mode

The most common item is called the **mode**.

- The mode is the item that occurs the most in a data set.
- In the graph the mode is “Europe” because it is represented by the highest bar.
- We could also say “The **modal** holiday destination abroad is Europe.”

Is it possible to have more than one modal value?

Is it possible to have no modal value?

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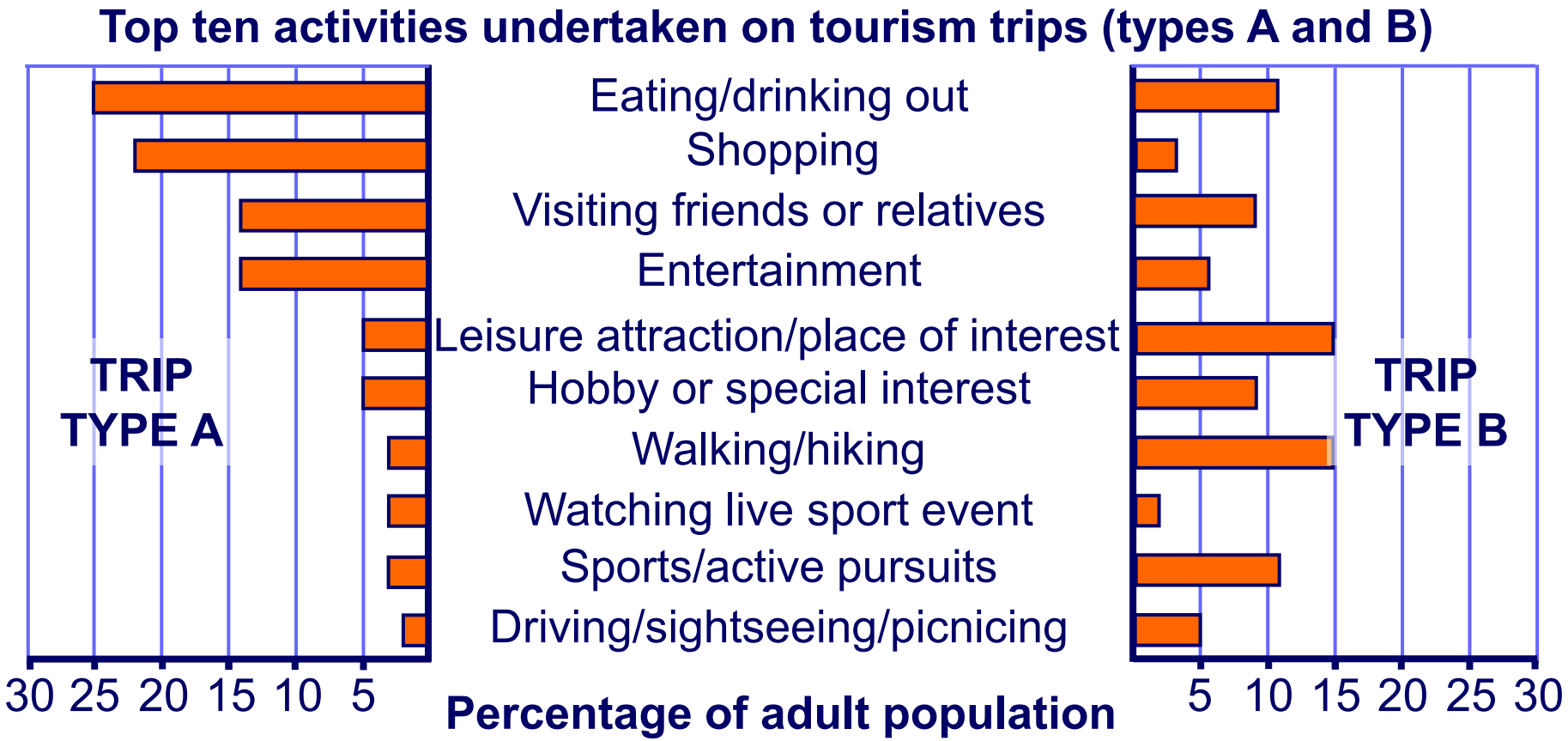
The mode



Compare the two graphs. What is the mode for each trip type? Suggest two types of holiday that A and B could represent in the graph.

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The mode

These figures show the number of juniors that attended a baseball practice each week.

14	15	15	13	12	14	15	0	11
13	14	11	16	14	15	9	10	12

Discuss the following questions:

- **Over how many weeks were the results collected?**
- **What is the modal number of students attending?**
- **What is the outlier in the data set? Can you think of any possible reasons for the outlier in this data set?**
- **If the data set were very large, what would be the best way to find the mode?**

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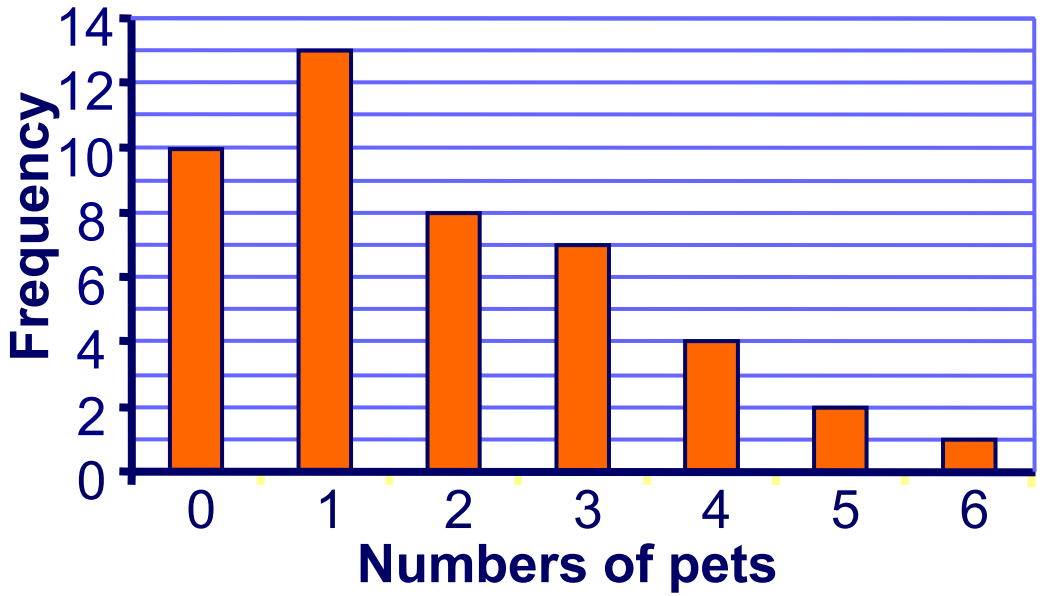
The mode from bar charts

A group of students were asked how many pets they had. This graph shows the results.



How many students have more than two pets?

What is the modal number of pets?

How many students took part in the survey?

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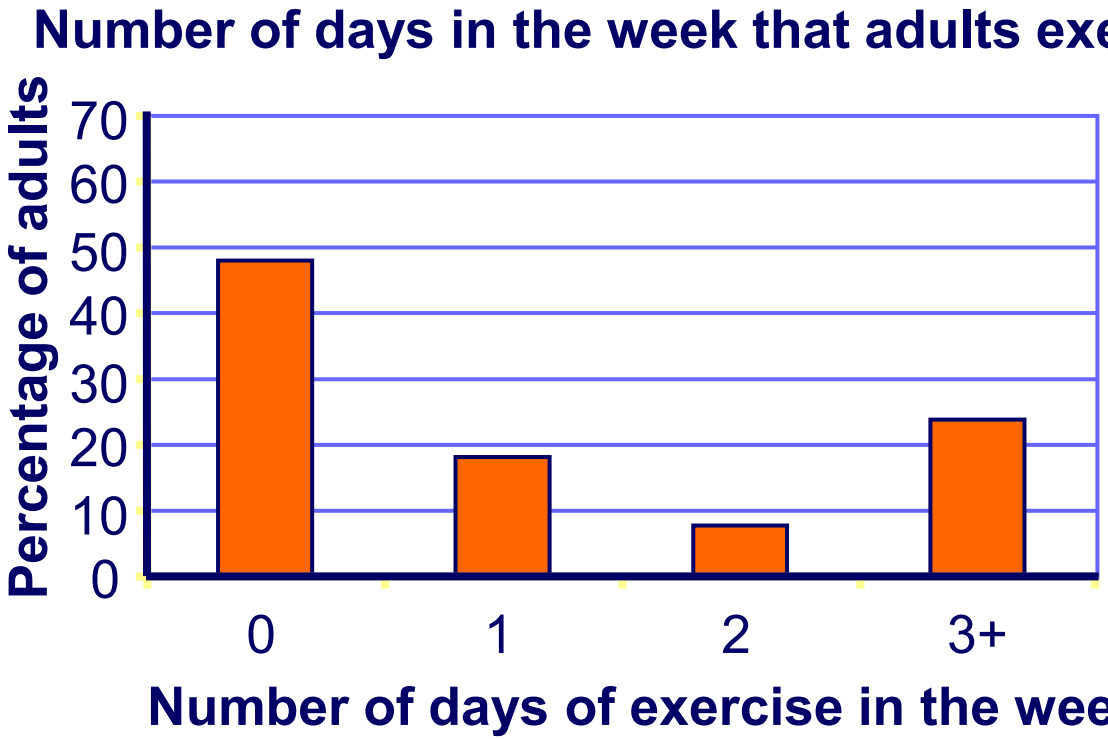
The mode from bar charts

A survey on participation in sport asked people the number of days in the past week when they had taken part in a moderate intensity sport.



Discuss what the mode of this graph shows.

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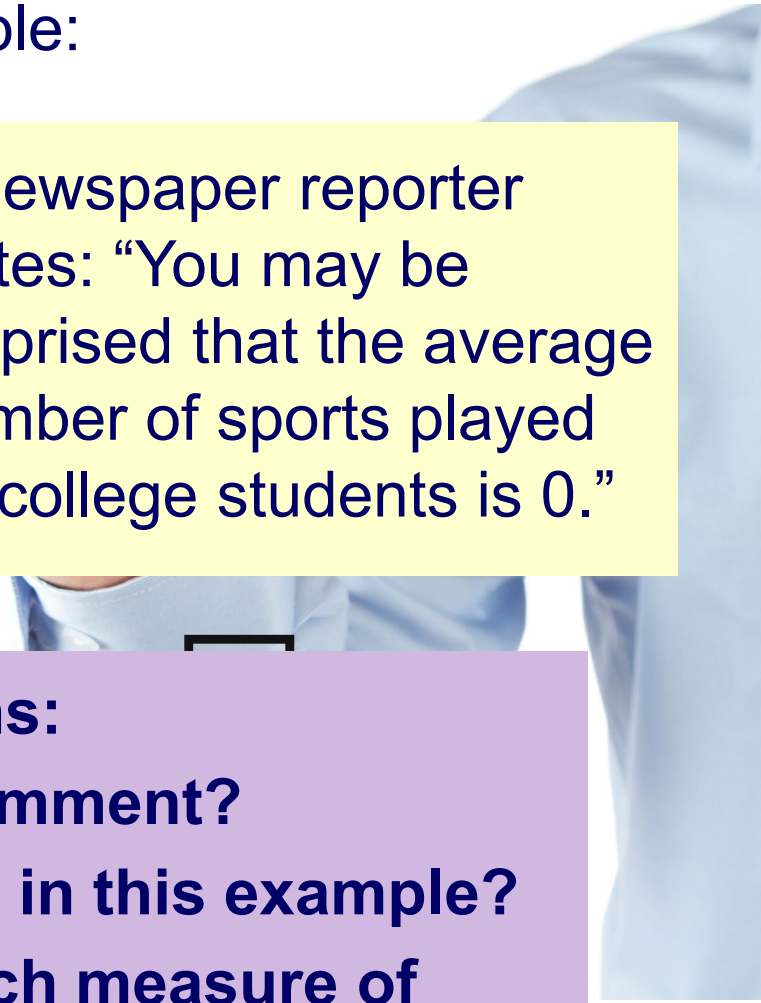
Unfair mode

Another survey is carried out among college students. The results are represented in this table:

No. of sports played	Frequency
0	20
1	17
2	15
3	10
4	9
5+	5

A newspaper reporter writes: “You may be surprised that the average number of sports played by college students is 0.”



Discuss the following questions:

- **Do you think this is a fair comment?**
- **Why is the mode misleading in this example?**
- **Should the reporter say which measure of central tendency has been used?**

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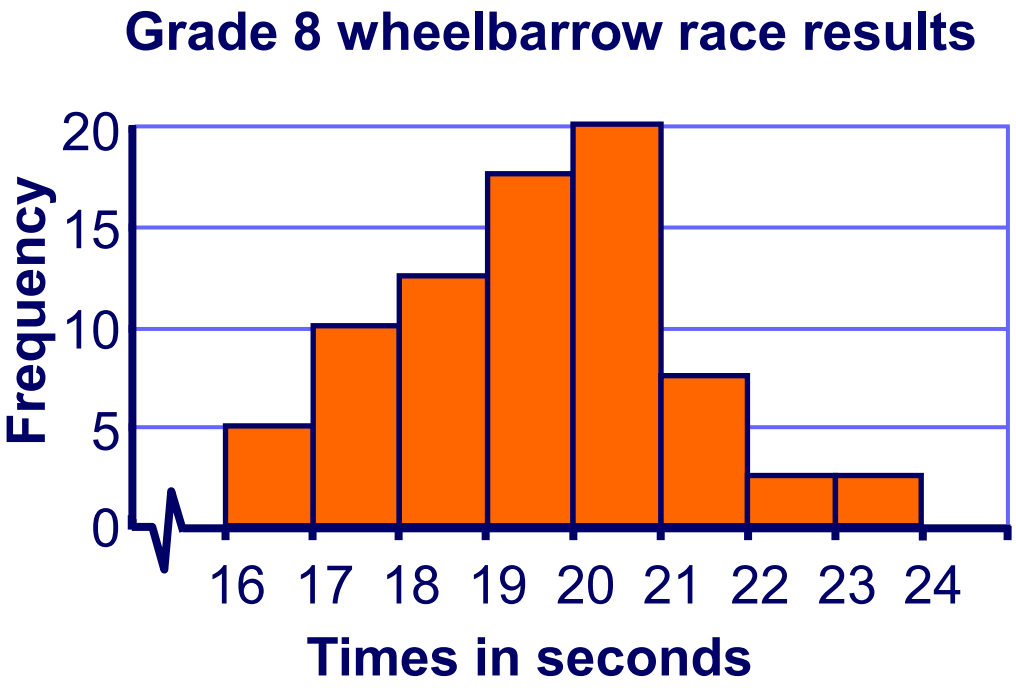
Modal groups

This graph shows grade 8 times for a 50 m wheelbarrow race.



What is the modal time interval?

How many students are in this interval?

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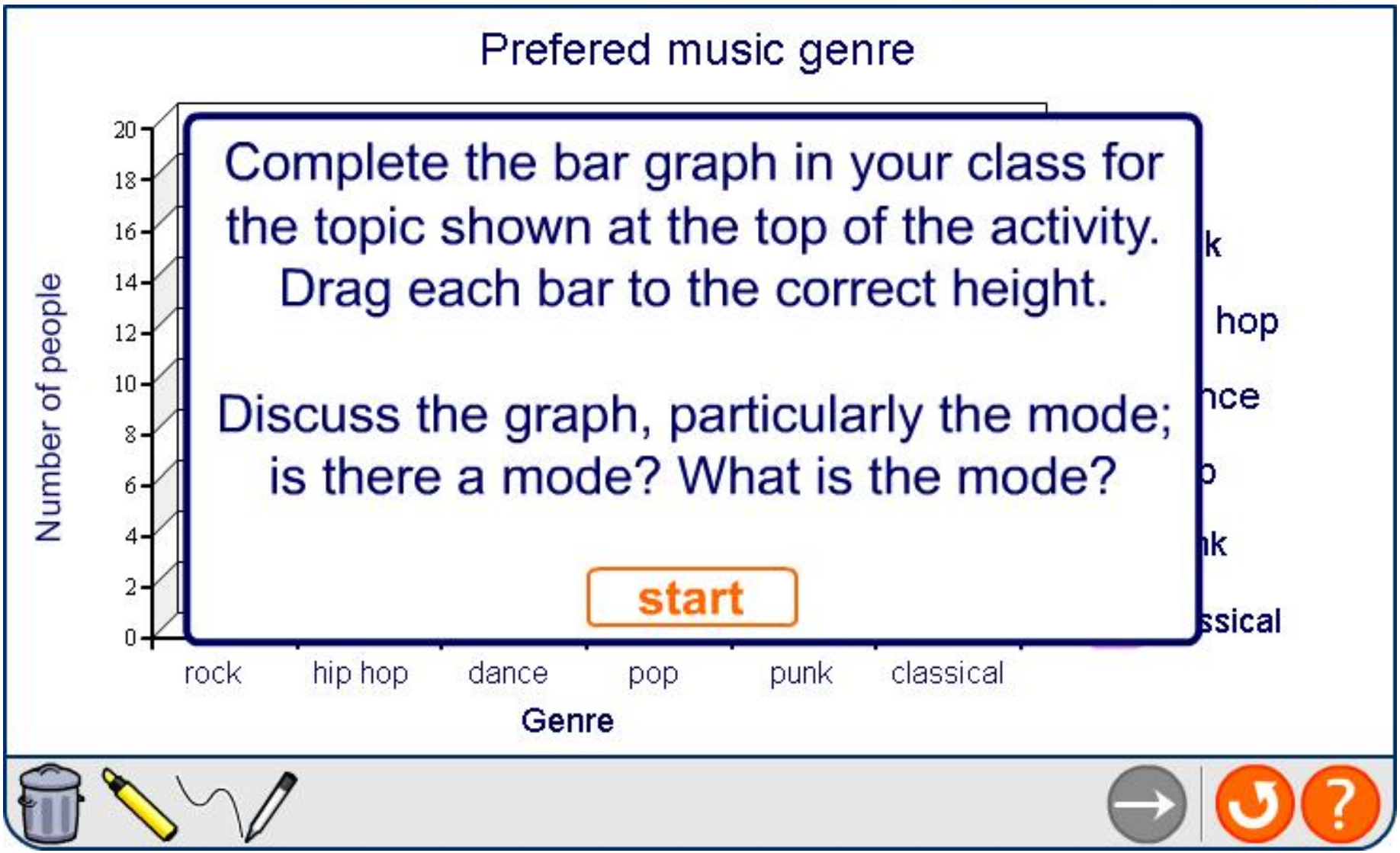
Class surveys



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