SUPPLEMENTARY MATERIAL: ADAPTED VERSION OF THE CONTENT KNOWLEDGE TEST EXTRACTED FROM THE BEST TEACHER FRAMEWORK (SCHUMACHER, 2017)

corresponding to article

TEACHING STATISTICS WITH POSITIVE ORIENTATIONS BUT LIMITED KNOWLEDGE? TEACHERS' PROFESSIONAL COMPETENCE IN STATISTICS

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REFERENCES

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Schumacher, S. (2017). *Lehrerprofessionswissen im Kontext beschreibender Statistik: Entwicklung und Aufbau des Testinstruments BeSt Teacher mit ausgewählten Analysen* [Teacher professional knowledge in the context of descriptive statistics: Development and structure of the BeSt Teacher test instrument with selected analyses]. Springer. https://doi.org/10.1007/978-3-658-17766-9

Sports day

On a sports day, students are offered a selection of different sports. Each student has exactly one vote. The following table illustrates the results of the election:

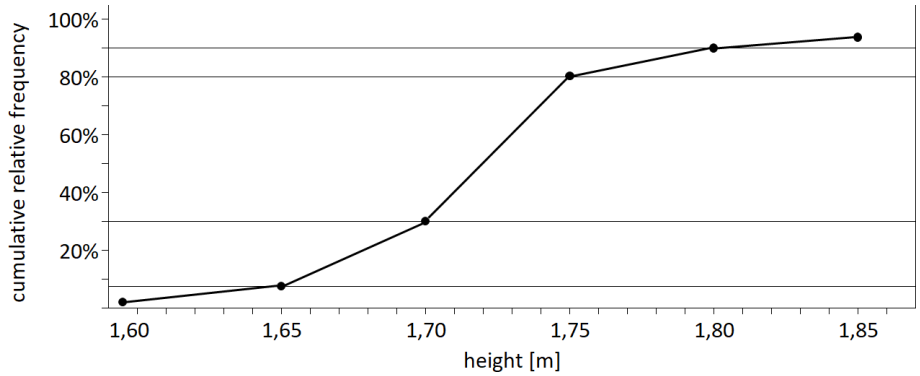
	Hockey	Soccer	Volleyball	Basketball	Swimming	sum
girls	51	39	88	64	58	300
boys	49	94	31	70	36	280
sum	100	133	119	134	94	580

Use the table to decide whether the following statements are true or false.

	true	false
20% of the boys chose basketball.	☐	☐
The proportion of those who chose basketball is higher in the group of girls than in the group of boys.	☐	☐

Womens' height

The following simplified graph shows the distribution of the height of women living in a European city with 30,000 inhabitants.



Use the graph to decide whether the following statements are true or false.

	true	false
80% of the women are exactly 1.75 m tall.	☐	☐
Approximately 10% of the women are between 1.75 m and 1.80 m tall.	☐	☐

Bowling

Tom plays a game of bowling. The following dataset shows the pins knocked down during the game:

2 4 10 2 3 6 5 8 1 9

Determine the arithmetic mean of this dataset.

The arithmetic mean is: _____

Number sequence

Determine another number for the following number sequence such that the arithmetic mean is 24.

17 22 23

The other number is: _____

Bonus points

Complete the following text with the correct choice at the end:

You asked 20 students of your class to complete a task and then determined the median of the points obtained. Afterwards, the students had to give a short presentation. For the six best presentations, you awarded an additional five bonus points each. After the presentations, you noticed that exactly the six students with the highest scores in the task also gave the best presentations. Now that you have also distributed the bonus points, the median of the new distribution of points compared to the original median is . . .

☐ . . . lower.

☐ . . . the same.

☐ . . . higher.

☐ . . . depending on the statistical skewness of the distribution, either lower or higher.

Monthly income

An employee in Zedland earns 200 ZED per month for four years. During the following two years, she receives a monthly income of 350 ZED. Determine the employee's average monthly income over the entire period. The solution is:

☐ 225 ZED

☐ 250 ZED

☐ 275 ZED

☐ 300 ZED

Number of children

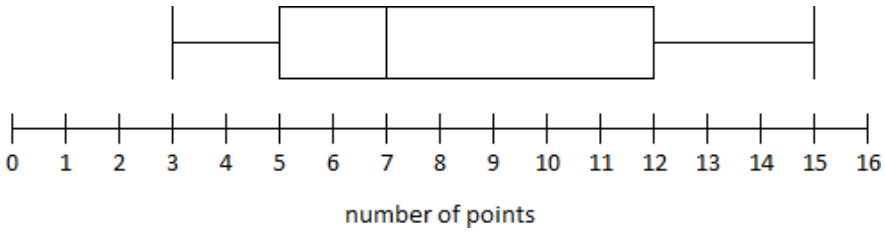
In a village with 50 households, the average number of children per household is determined. To do this, all the children are counted and the result is divided by 50. The average number of children per household thus determined is 2.2.

Decide for each statement whether it is true or false.

	true	**false**
A total of exactly 110 children live in the households in the village.	☐	☐
Half of the households of the village definitely have more than two children.	☐	☐
There is definitely at least one household with three or more children.	☐	☐

Range

Determine the range of the following box plot.



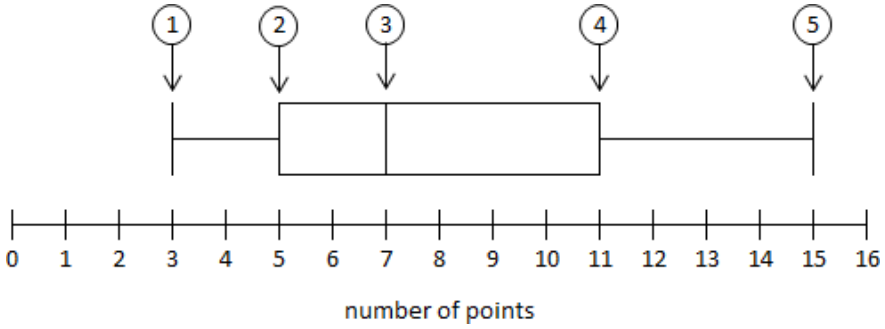
The range is: _____

Class assignment

In a class assignment, the 20 students achieved the following scores:

3, 3, 3, 4, 4, 4, 5, 6, 6, 7, 7, 8, 8, 8, 11, 11, 13, 14, 14, 16

The corresponding box plot is incorrect:

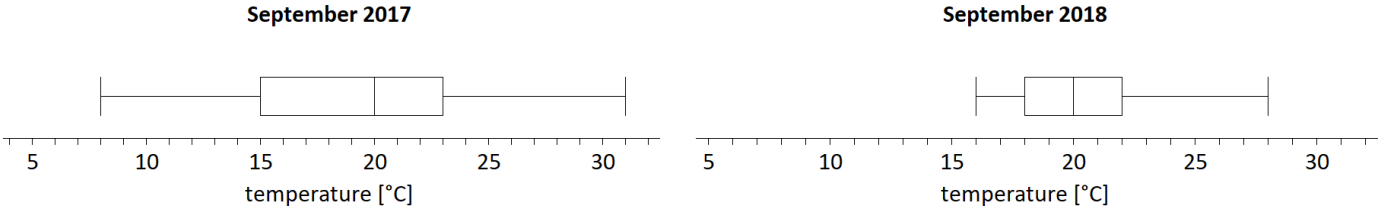


Identify errors (multiple answers are possible).

☐ value 1 ☐ value 2 ☐ value 3 ☐ value 4 ☐ value 5

Daily maximum temperatures

The following box plots show the daily maximum temperatures of a city in September 2017 and 2018.



Use the box plots to decide whether the following statements are true or false.

	true	false
The range of temperatures in September 2017 and September 2018 is the same.	☐	☐
In both years, the daily maximum temperature was 20˚C or more on at least 15 days.	☐	☐
There was no day in both years in September where it was hotter than 31˚C.	☐	☐