

CONSOLIDATION TASK MEMO

Topics: The Scientific Method

Total: 35

**QUESTION 1**

- 1.1. The higher the temperature the higher the number of chirps per minute ✓✓ **OR**
 The lower the temperature the lower the number of chirps per minute ✓✓ **OR**
 The higher the temperature the lower the number of chirps per minute ✓✓ **OR**
 The lower the temperature the higher the number of chirps per minute ✓✓ (2)
- 1.2 (a) temperature ✓ (1)
 (b) number of chirps per minute ✓ (1)
- 1.3 Crickets were all the same species ✓
 Wooden boxes were the same size ✓
 The same number of crickets per wooden box ✓
 The boxes were left for the same amount of time ✓
 Method of recording the numbers of chirps is the same ✓ first 3 only (3)
- 1.4 They could increase the sample size ✓/number of crickets to obtain more generalisable results ✓/to calculate and average.
OR
 They could have repeated the investigation ✓ to confirm the consistency and trustworthiness of their results ✓.
OR
 They could have calculated an average ✓ to provide more generalisable results ✓ for the larger group / species of cricket. first only 1 x 2 marks (2)
- 1.5 Summer ✓ since crickets chirp more in warmer temperatures ✓. (2)
- 1.6 (a) 57/58 ✓ chirps (1)
 (b) 27/28°C ✓ (1)
- 1.7

✓V

The effect of temperature on the number of chirps per minute in crickets ✓H	
Temperature (°C)	Chirps per minute ✓C
10	40
20 ✓I	78 (accept any value between 75 – 78) ✓D
30	105 (accept any value between 104 – 107)
40	140

H Heading with both variables = 1**C** Column headings = 1**V** Independent and dependent variables in correct columns = 1**I** Information in temperature column correct = 1**D** Information in chirps column correct = 1

(5)

(18)**QUESTION 2**

- 2.1 To determine if learners test scores are affected by distracting sounds in the testing environment ✓✓. (2)
- 2.2 20 ✓ learners (1)
- 2.3 Distracting sounds ✓ (1)

- 2.4 The same time to prepare for the test ✓
 The same test must be written ✓
 The same marking guideline ✓
 The learners must all be from the same school ✓
 The same time to complete the test ✓
 The learners must have the same IQ composition in the two groups ✓
 The same gender / or the same gendered combination in each group ✓
 The same type of room setting ✓ first 3 only (3)
- 2.5 It ensures the reliability of the experiment. ✓ (1)
- 2.6 Test group 1 (quiet room) ✓ – to be able to compare the results ✓ (their test scores) with the experimental group (learners that received distracting sounds). This allows us to see the effect of distracting sounds ✓ on their test scores. (3)
- (11)**

QUESTION 3

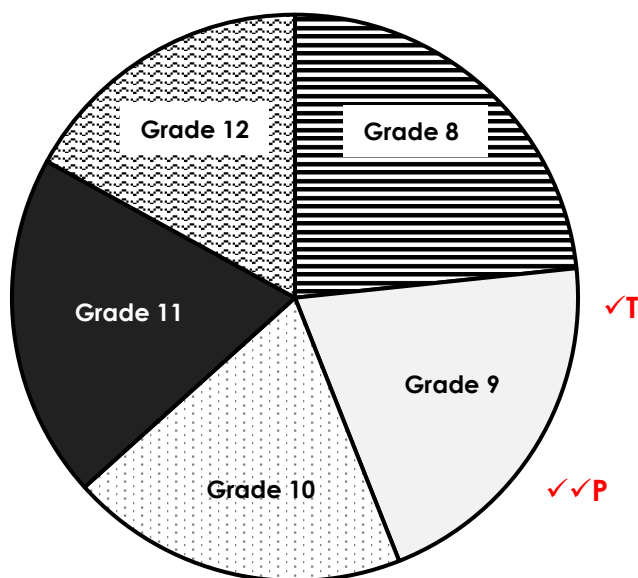
Total: $70 + 62 + 58 + 59 + 51 = 300$
 Grade 8: $70/300 \times 360 = 84^\circ$
 Grade 9: $62/300 \times 360 = 74,4 = 74^\circ$
 Grade 10: $58/300 \times 360 = 69,6 = 70^\circ$
 Grade 11: $59/300 \times 360 = 70,8 = 71^\circ$
 Grade 12: $51/300 \times 360 = 61,2 = 61^\circ$

✓✓C

TEACHER TIP

Print the pie chart onto a transparency that can be placed over a learner's pie chart. The size of the pie chart does not matter as the proportions of the sectors remain the same. Place the transparency with the mid-point of the pie chart on top of the mid-point of the learner's pie chart. Rotate the transparency to see if the sectors line up. You may have to flip the transparency over if the learner used a different sequence for the sectors.

Percentage of high school learners in South Africa that participate in sports ✓H



Pie chart drawn (T)	1
Title of the graph shows the relationship between two variables (H)	1
Correct calculations to determine proportions (C)	2: All 4 correct 1: 1-3 correct
Correct proportions for the labelled sectors (P) <i>To be checked by using a transparency</i>	2: All 4 sectors correct 1: 1-2 sectors correct

(6)