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NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
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Level 3 Mathematics and Statistics (Statistics) 2022

91584 Evaluate statistically based reports

Credits: Four

RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics (Statistics) 91584.

Check that this booklet has pages 3–6 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS SHEET AT THE END OF THE EXAMINATION.

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The resources start on the opposite page.

REPORT ONE: BBC Good Food Nation – survey looks at children's eating habits

Children want to be more adventurous and try different foods and are keen to cook more at home.

The report asked 1000 parents of children aged 5–16 in the United Kingdom (UK) about their children's attitudes to food, cooking, and eating, now and in the future.

The results found that just under four in five children surveyed are allowed to cook at home, with 50% of children making their own breakfast, 46% their own lunch, and 26% their own dinner, during pandemic lockdowns.

Around 59% of surveyed parents either agreed or strongly agreed with the statement that their children were more interested in cooking at home during lockdowns in 2020. Just 11% disagreed with the statement.

Of the children whose parents were surveyed:

- 73% agreed they'd like to try different kinds of food.

- 44% of children would like there to be no plastic packaging on food.

- 68% of children know how to make toast.

- 59% of children said they had done some baking during the pandemic.

- 74% agreed they'd like to cook more at home.

- 1 in 14 children would like there to be an insect-based diet in ten years' time.

- 55% of children heat food in the microwave.

- 51% chop vegetables.

The Editor of *BBC Good Food*, said, "It was fascinating to survey children's eating habits, behaviours and opinions around food." The findings show that far from being fussy eaters, children want to take over the nation's kitchens – baking and preparing meals, and trying different kinds of foods. She added, "They are passionate about exploring alternative diets and methods of food production that could be more sustainable for the planet."

The report has a margin of error of 3.2%.

Adapted from https://www.bbc.co.uk/newsround/58653757 and https://www.bbcgoodfood.com/article/bbc-good-food-nation-survey-results

REPORT TWO: Memes as mood boosters

There's nothing like a good meme to improve your mood. A new study investigating the psychology of how media messages can affect you confirms this.

The 748 participants were split into two groups. The groups viewed either a meme with an image and text or a "non-meme" – the text only with no accompanying image. Participants were then asked to rate their feelings in the moment, along with rating the cuteness and humour of the meme or "non-meme".

Figure 1: Meme (image and text)
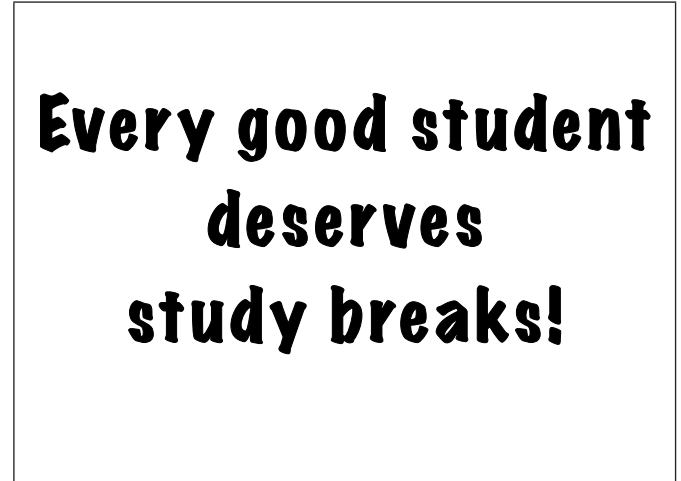Source: https://corgicare.com/books-about-corgis/

Figure 2: Non-meme (text only)

Results showed that, after controlling for other factors, memes with images were associated with stronger cuteness responses, higher levels of reported humour, and more positive emotions; however, meme viewing was not associated with any difference in anxiety levels of participants.

Taking a break to view and share bits of cute or funny pop culture commentary can help boost your mood and address stress through laughter.

Further study details
Participants were recruited from Amazon Mechanical Turk, and were each paid $2 US to complete the questionnaire. Amazon Mechanical Turk is a crowdsourcing marketplace where workers globally can sign up and complete tasks and assignments virtually (online). The data was collected in December 2020.

Cuteness response was measured with three items asking participants how cute, adorable, and sweet-looking the images were using a seven-point Likert scale from 1 (not at all) to 7 (a lot).

CUTENESS ITEMS	
• Is it cute?	1 (not at all) 2 3 4 5 6 7 (a lot)
• Is it adorable?	1 (not at all) 2 3 4 5 6 7 (a lot)
• Is it sweet-looking?	1 (not at all) 2 3 4 5 6 7 (a lot)

Humour response was measured with three items asking participants how funny, amusing, and humorous the images were also using a seven-point Likert scale from 1 to 7.

HUMOUR ITEMS	
• Is it funny?	1 (not funny) 2 3 4 5 6 7 (funny)
• Is it amusing?	1 (not amusing) 2 3 4 5 6 7 (amusing)
• Is it humorous?	1 (not humorous) 2 3 4 5 6 7 (humorous)

Anxiety was measured with three items asking participants how tense, anxious, and stressed they felt using a seven-point Likert scale from 1 (not at all) to 7 (very).

ANXIETY ITEMS
- How tense do you feel?   1 (not at all) 2 3 4 5 6 7 (very tense)
- How anxious do you feel?   1 (not at all) 2 3 4 5 6 7 (very anxious)
- How stressed do you feel? 1 (not at all) 2 3 4 5 6 7 (very stressed)

Positive emotions were measured with six items: calm, relaxed, content, amused, delighted, cheerful, using a seven-point Likert scale from 1 (not at all) to 7 (very).

POSITIVE EMOTION ITEMS
- How calm do you feel?   1 (not at all) 2 3 4 5 6 7 (very calm)
- How relaxed do you feel?   1 (not at all) 2 3 4 5 6 7 (very relaxed)
- How content do you feel?   1 (not at all) 2 3 4 5 6 7 (very content)
- How amused do you feel?   1 (not at all) 2 3 4 5 6 7 (very amused)
- How delighted do you feel? 1 (not at all) 2 3 4 5 6 7 (very delighted)
- How cheerful do you feel?   1 (not at all) 2 3 4 5 6 7 (very cheerful)

From these, a single reliable measure for each participant for each of mean cuteness, mean humour, mean anxiety, and mean positive emotions was formed.

Adapted from: https://doi.apa.org/doiLanding?doi=10.1037%2Fppm0000371

REPORT THREE: Companion Animals in New Zealand in 2020

The results of Aotearoa's largest general survey of pet owners have just been released by Companion Animals New Zealand (CANZ).

Nearly two-thirds of kiwi households have at least one companion animal (pet), a figure unchanged in the last five years. With 41% of New Zealand households having a cat, our rates of cat ownership are higher than both Australia and the US, and more than double the rate of the UK. Dogs are also an increasingly popular pet, with 34% of New Zealand households having at least one dog; up from 28% in 2015.

Questions were also asked of people who don't own pets. More than half of the households in New Zealand that don't currently have a companion animal would like to have one (756 of the 1277 non-pet owners), with the three biggest barriers to pet ownership being an unsuitable home or lifestyle (37%), living in rented accommodation where pets are not allowed (33%), and cost (30%).

Companion animal type	Household proportion
Cats	41%
Dogs	34%
Fish	9%
Birds	6%
Rabbits	2.8%
Other small mammals*	1.8%
Horses / ponies	1.6%
Reptiles	1.3%
Total	**64%**

* includes rats, mice, guinea pigs

Figure 3: Companion animals in New Zealand households

CANZ says that, given the large numbers of animals in New Zealand looking for a home, it is disappointing that many landlords continue to disallow pet ownership in rented accommodation.

New Zealand is a nation of animal lovers, with a high proportion of households having a pet, second only to the US (67%*†). The UK has a significantly lower proportion of pets, at only 40% of households.*

*We have compared to countries who share economic, social, and cultural similarities.

Methodology
Camorra Research conducted online research among a nationally representative sample of adults aged 18 years and older. Quotas were employed using Statistics NZ 2018 Census data to ensure the sample was representative of the NZ household population by age, gender, and region. The total representative sample was 3 599 respondents, which included 2 322 pet owners. An additional boost of 43 horse owners was conducted to bring the total number of horse owners surveyed to 100. Data collection commenced on 7 April 2020, and was completed on 23 April 2020.

†American Veterinary Medical Association; Pet Ownership & Demographic Sourcebook 2018. $n = 41\,622$

Adapted from https://www.companionanimals.nz/2020-report