

91923R



Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 1 Science 2025

### 91923 Demonstrate understanding of science-related claims in communicated information

Credits: Five

#### RESOURCE BOOKLET

Refer to this booklet to answer the questions for Science 91923.

Check that this booklet has pages 2–6 in the correct order and that none of these pages is blank.

**YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.**

## CONTEXT ONE: Personality tests

### RESOURCE A

*The following information comes from an opinion and analysis article published on Scientific American's (a popular science magazine) website in February 2024. The two authors are part of a group of researchers who self-publish their work on their website called ClearerThinking.org, which is linked to in the article.*

#### **Personality tests aren't all the same. Some work better than others.**

By Seth Stephens-Davidowitz and Spencer Greenberg

Developed during World War II, the Myers-Briggs Type Indicator, or MBTI, is likely the



**Figure 1: Personality traits are not binary**



The chart shows the distribution of study participants' scores on the



*This is an opinion and analysis article, and the views expressed by the author or authors are not necessarily those of Scientific American.*

Source: <https://www.scientificamerican.com/article/personality-tests-arent-all-the-same-some-work-better-than-others>

## CONTEXT ONE: Personality tests

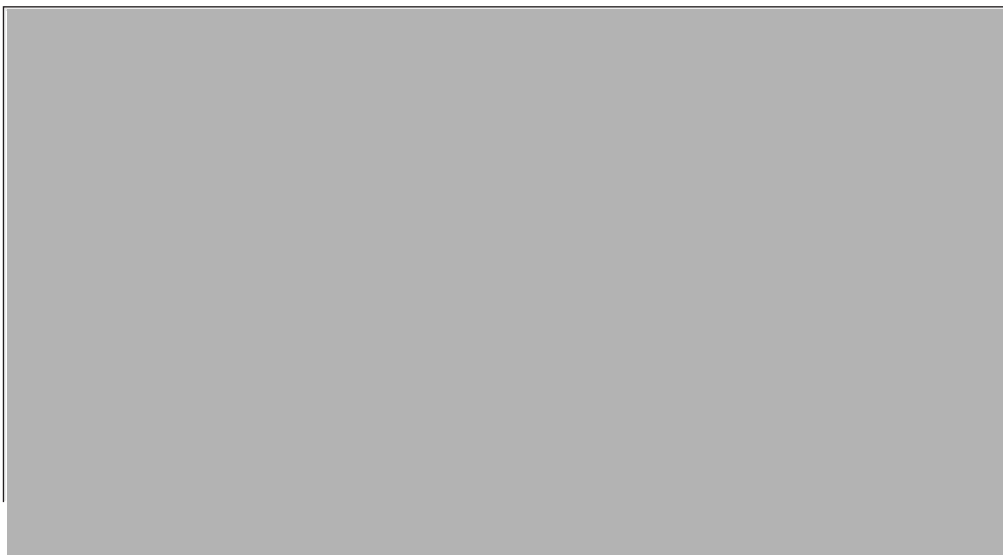
### RESOURCE B

*The following information is from The Myers-Briggs Company website, the creators of the Myers-Briggs Type Indicator (MBTI) personality test. This test can be purchased from the website, which also contains information about the validity and reliability of the test, and case studies from customers who have used it.*

The MBTI assessment is supposed to measure personality type and then to be used as a tool for



**Figure 2: Is the MBTI assessment reliable?**



1 Test-retest reliability: whether the results of a test are consistent over time.

2 Internal consistency reliability: whether the questions for each measure are consistent with each other.

## CONTEXT TWO: The future of plastics

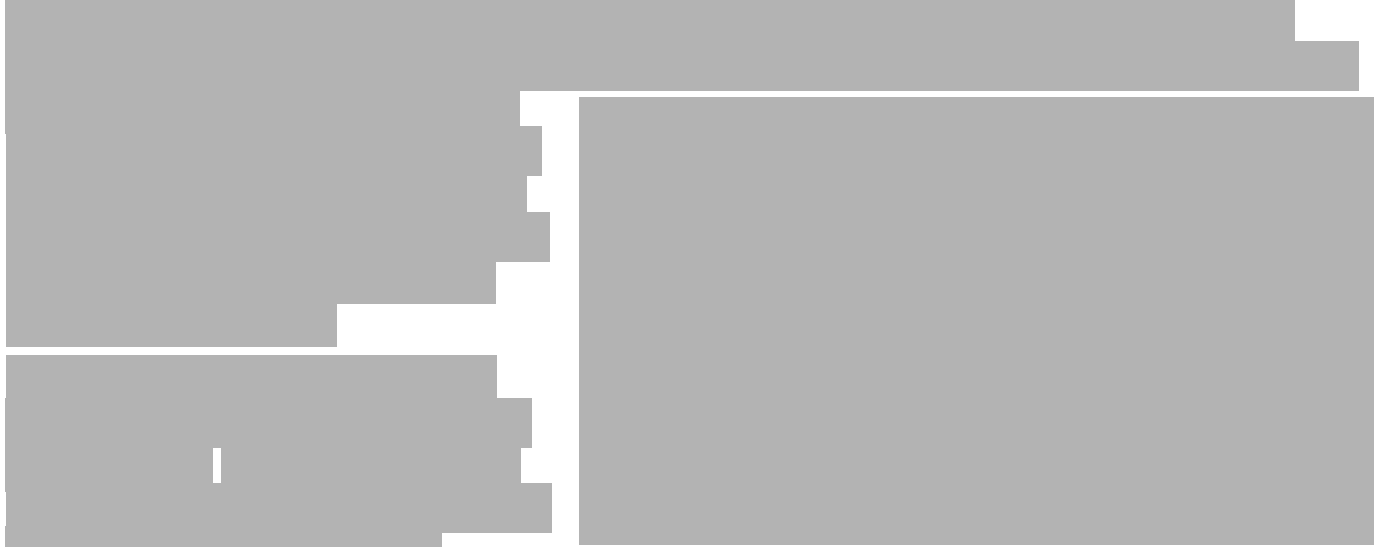
### RESOURCE A

*The following information comes from an article written in May 2024 on the Good News Network website, which summarises research on plastic-eating bacteria.*

### **Revolutionary new 'living plastic' that could slash damage to the environment developed by California researchers**

By Andy Corbley

Researchers Han Sol Kim and Jon Pokorski from the University of California San Diego believe



**Figure 3:** Study co-first author Han Sol Kim, testing the stretchability and strength of the living plastic.



polyurethane pellets (left) and *Bacillus subtilis* spores (right).



*This research was originally published in Nature Communications, a peer-reviewed, open access, scientific journal.*

## CONTEXT TWO: The future of plastics

### RESOURCE B

*The following information comes from BioPak. BioPak is a company that produces plant-based compostable packaging products. Their aim is “to produce the most sustainable, environmentally friendly packaging in the market”. They believe that compostable packaging is a more trustworthy and sustainable option than biodegradable packaging.*

It's important to be on the lookout for misleading marketing. For example, plastic products may



**Figure 5: Plastics that are biobased / fossil-based and non-biodegradable / biodegradable**



### Acknowledgements

Material from the following sources has been adapted for use in this assessment:

#### Context One

##### Resource A

Stephens-Davidowitz, S. & Greenberg, S. (2024, February 28). *Personality tests aren't all the same. Some work better than others*. Scientific American. <https://www.scientificamerican.com/article/personality-tests-arent-all-the-same-some-work-better-than-others>

Montañez, A. (2024). *Personality traits are not binary* [Graph]. <https://www.scientificamerican.com/article/personality-tests-arent-all-the-same-some-work-better-than-others>

##### Resource B

The Myers-Briggs Company.

<https://nz.themyersbriggs.com/themyersbriggs-mbti-facts.aspx>

(2016, December 8). *MBTI® users conference—creating a culture of clarity/it is reliable*.

<https://www.themyersbriggs.com/en-US/Connect-With-Us/Blog/mbti-users-conferencecreating-a-culture-of-clarity-it-is-reliable>

<https://www.themyersbriggs.com/en-US/Support/MBTI-Facts#:~:text=The%20MBTI%20assessment%20can%20give,operate%20outside%20them%20when%20necessary>

<https://nz.themyersbriggs.com/themyersbriggs-all-about-the-mbti-assessment.aspx>

(2020). *Myers-Briggs Type Indicator, Scientifically valid or not?* [Infographic]. <https://nz.themyersbriggs.com/content/MBTI-Reliability-and-validity-Infographic.pdf>

#### Context Two

##### Resource A

Corbley, A. (2024, May 2). *Revolutionary new 'living plastic' that could slash damage to the environment developed by California researchers*. Good News Network. <https://www.goodnewsnetwork.org/revolutionary-new-living-plastic-that-could-slash-damage-to-the-environment-developed-by-california-researchers>

Baillet, D. (2024). *Study co-first author Han Sol Kim* [Photograph]. <https://www.goodnewsnetwork.org/wp-content/uploads/2024/05/biodegradable-living-plastic-3-1068x601.jpg>

Baillet, D./UC San Diego Jacobs School of Engineering (2024). *Thermoplastic polyurethane pellets and Bacillus subtilis spores* [Photograph]. <https://www.goodnewsnetwork.org/wp-content/uploads/2024/05/revolutionary-n-1176762-e1714561661406-1068x591.jpg>

##### Resource B

Maguero, L. (2022). *Biodegradable plastic problems*. BioPak. <https://www.biopak.com/nz/resources/biodegradable-plastic-problems>



