

Questions, variables and hypotheses	Notes/Answers
Define the following terms: • aim • research question	
Briefly outline the following features of a good research question: 1. testable 2. specific 3. achievable	
Define the following terms and provide an example of each from the video: • independent variable • dependent variable	
Define hypothesis and provide an example	
Differentiate between an alternative hypothesis and a null hypothesis	
What questions do you still have?	
Planning and conducting methodologies	
List five of the scientific methodologies which can be undertaken as part of a science investigation	
Define stratified sampling	
List five strategies that you can use to minimise bias when taking samples.	

Define a negative control and explain why it is essential when conducting an experiment.	
Define an extraneous variable (also known as an uncontrolled variable) and provide an example	
Differentiate between controlled and uncontrolled variables using the example from the video	
Briefly outline why replication is an essential part of your investigation.	
What questions do you still have?	
Safety and ethics during investigations	
Define ethics and list at least four ethical considerations for future investigations	
List four safety risks that could be involved in an investigation and briefly describe how these risks could be minimised	
What questions do you still have?	
Data collection and transformation	
Differentiate between primary and secondary data using examples from the video	

Differentiate between quantitative and qualitative data using examples from the video	
What are the benefits of transforming your raw data into a graph?	
Differentiate between numerical and categorical variables using examples from the video	
What questions do you still have?	
Understanding your investigation and results	
Define accuracy	
Define precision	
Define reliability	
Differentiate between random errors and systematic errors using examples from the video	
Briefly explain the relationship between errors, accuracy, and reliability	

Define limitations and provide 3 examples	
What questions do you still have?	
Drawing evidence-based conclusions	
What does 'correlation does not mean causation' mean?	
Define the following terms: • opinion • anecdote • evidence	
Identify two common mistakes students make when drawing conclusions and how these can be overcome	
What questions do you still have?	
Communicating scientifically	
Describe the features that should be included when writing a scientific report: • Title • Abstract • Introduction • Method • Results • Discussion • Conclusion • Acknowledgements • References	

List the scientific conventions that are recommended when writing a scientific report	
Define the following terms: • Theory • Model	
List 3 things that you should consider when evaluating your sources?	
What questions do you still have?	
Ethics in biology	
Define ethics	
What are bioethical issues? Include an example from the video.	
Define an ethical approach	
Identify and outline the three approaches below:	

● consequence based approach ● rule based approach ● virtues based approach	
Briefly describe the 5 ethical concepts explored in the video: 1. integrity 2. justice 3. beneficence 4. non-maleficence 5. Respect	
What questions do you still have?	