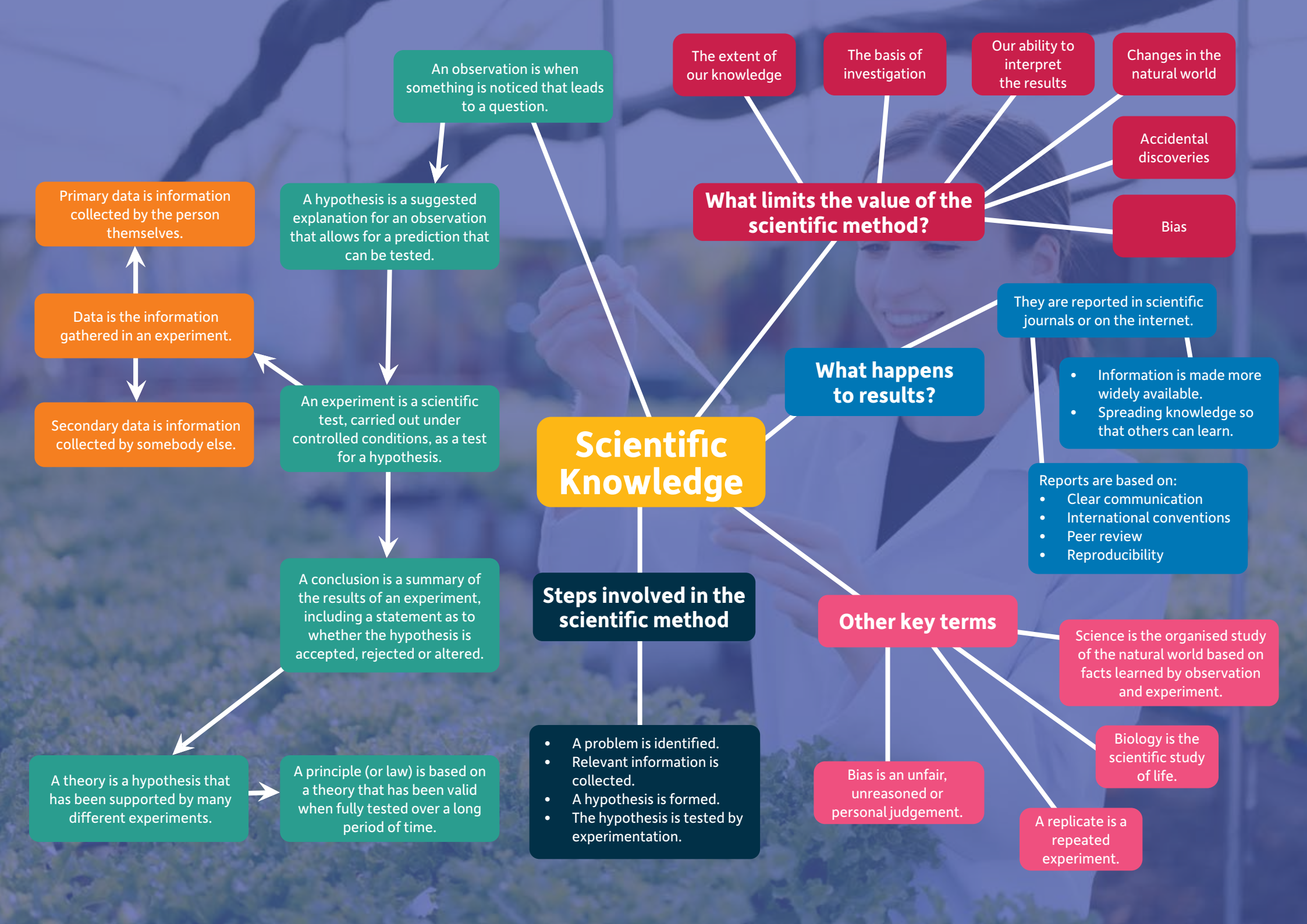
Scientific Knowledge
Steps involved in the scientific method
An observation is when something is noticed that leads to a question.
A hypothesis is a suggested explanation for an observation that allows for a prediction that can be tested.
An experiment is a scientific test, carried out under controlled conditions, as a test for a hypothesis.
Data is the information gathered in an experiment.
Primary data is information collected by the person themselves.
Secondary data is information collected by somebody else.
A conclusion is a summary of the results of an experiment, including a statement as to whether the hypothesis is accepted, rejected or altered.
A theory is a hypothesis that has been supported by many different experiments.
A principle (or law) is based on a theory that has been valid when fully tested over a long period of time.
A problem is identified.
Relevant information is collected.
A hypothesis is formed.
The hypothesis is tested by experimentation.
What limits the value of the scientific method?
The extent of our knowledge
The basis of investigation
Our ability to interpret the results
Changes in the natural world
Accidental discoveries
Bias
What happens to results?
They are reported in scientific journals or on the internet.
Information is made more widely available.
Spreading knowledge so that others can learn.
Reports are based on:
Clear communication
International conventions
Peer review
Reproducibility
Other key terms
Science is the organised study of the natural world based on facts learned by observation and experiment.
Biology is the scientific study of life.
Bias is an unfair, unreasoned or personal judgement.
A replicate is a repeated experiment.