Theories are based directly on observation, where observation is exactly what you see.

Theories fit within certain paradigms, hence if they are old or untrue they are helpful to scientists.

Observation is influenced by theories scientists hold.

Scientists discover theories, because the theories are there in nature and scientists only have to find them.

Scientists invent theories, because theory invention comes from the mind.

Old theories or those, which had been proven untrue, are of no use to scientists.

A theory is a hypothesis that has proven to be correct, because a hypothesis must be subjected to empirical test and, if proven true, it becomes a theory.

A theory is validated by its connection to other theories generally accepted within the scientific community.

Scientific models (e.g., the model of the atom) are copies of reality, since they describe reality as it is.

Scientific models do not describe reality as it is. They are scientists' ideas or educated guesses, because scientists cannot see the real thing.

A scientist evaluates scientific claims exclusively through empirical evidence.

A scientist does not exclusively need to use empirical evidence; imagination or creativity may be involved.

A scientist is someone who is objective and open minded in all decisions.

A scientist is influenced by many factors' e.g., previous knowledge, logic and social factors.

The best scientists follow the steps of the scientific method.

The best scientists are those who use any methods that might obtain favourable results.

A scientist strives to discover the absolute truth.

A scientist works within the scientific community to find the best way to explain part of nature.

Scientists report data exactly as their senses perceive them.

Recording data is influenced by other factors; e.g., previous knowledge.

Scientific knowledge corresponds directly with reality.

Scientific knowledge is our understanding of reality; not reality as it is.

Scientific knowledge is cumulative. It increases with increasing observation.

Scientific knowledge is not only cumulative; it can radically change.

Once discovered,
scientific knowledge does not change.

Scientific knowledge is tentative.

Scientific knowledge can only be formed by scientific methods.

Scientific knowledge can be formed by scientific and non-scientific methods.

Scientific knowledge grows directly out of observations, by unbiased observers.

Scientific knowledge may develop from observations, but these are limited by the observer's pre-conceptions and biases.

Scientific knowledge develops out of a well-rehearsed and systematic scientific method used by all scientists.

Scientific knowledge develops out of a creative process involving many individuals, practising their art in diverse ways and, yet, arriving at a consensus.

All the best scientists follow the steps of the scientific method.

The most successful scientists vary in their approaches to problems; there is no one ‘scientific method’ they use.

The best scientists always plan all details of their experiments in advance and adhere to them tightly.

Scientists may, and often do, alter their plans for experiments once preliminary results are available.

The use of the scientific method is required in order for scientific knowledge to be acceptable to all.

Valid scientific knowledge may result from what many would consider non-traditional scientific methods.

Scientists' task is to discover laws of nature. Their personal wishes have nothing to do with it.

Scientists invent the laws that describe what happen in nature; they are not, simply, discovered.

With enough evidence, scientific laws can be proven to be true.

Scientific laws are only scientists' best attempts at described the behaviour of phenomena in nature.

Science is one of the very few human activities - perhaps the only one - in which errors are systematically criticized and fairly often, in time, corrected.

In the evolution of science, new knowledge replaces knowledge of another and incomparable sort, rather than replaces ignorance or lack of knowledge.

Science is distinguished from pseudo-science by its empirical method, which is essentially inductive, proceeding from observation and experiment to theory.

The superiority of one theory to another is something that cannot be proved in a debate.

Science always retains a set of permissible standards, problems, concepts and explanations which distinguishes it from non-science.

Observations are dependent on our sometimes inadequate sense perceptions and, therefore, may be unreliable and fallible.

The scientific method may be called the critical method. It is a method of trial and the elimination of errors, or proposing theories and submitting them to the severest tests we can design.

Observations are theory-dependent and theory often, although not always, precedes observations.

In science, as distinct from theology, a critical comparison of the competing theories, of the competing frameworks, is always possible.

Science often utilizes indirect observation which, in turn, depends on a theory of instrumentation.

Science proceeds to theories of even richer content and of higher degree of universality, each theory leading logically to its successor.

A new theory may have to be introduced to provide the evidence for the rejection of an existing theory. So long as the old theory is retained, there may be no counter-evidence. New theories enable scientists to view the world in new ways.

A theory is true if, and only if, it corresponds to the facts of nature.

There can be no sharp definition between observation and inference.

Science has a unique attribute of openness, both of mind and openness of the realm of investigation.

Scientific observations made by competent scientists will usually be different if the scientists believe different theories.

Once a scientific law is discovered, it should never need to be changed.

Even when scientific investigations are done correctly, the knowledge that scientists discover from those investigations may change in the future.

Scientific knowledge gets closer to the truth as time goes by.

Scientists normally work as members of communities, often in institutions – science is s social activity which involves people. These people have personal attitudes, views, opinions and prejudices

Scientific knowledge is verified by experiment.

Scientists work in social, cultural, historical and political contexts. The context determines: what methods they are able to use; what questions get asked; how far they are funded and pursued. Research pursued and methods used in Victorian England or Nazi Germany have not been, and will not be, acceptable in other eras

Scientists and engineers should be the ones to decide on world food production (for example: what crops to plant, where best to plant them, how to transport food efficiently, how to get food to those who need it, etc.) because scientists and engineers are the people who know the facts best.

The choice between competing theories is not made purely on empirical/experimental grounds. Scientists may retain theories, despite disconfirming evidence. Theories are not confirmed or proven, but may be supported, by experimental results.

Scientific ideas develop from hypotheses to theories, and finally, if they are good enough, to being scientific laws.

Scientific knowledge progresses through a series of revolutions or paradigm shifts.

Theories can be shown to be false (falsified) by experimental data.

Scientific knowledge is the product of a complex social, historical, cultural and psychological activity.

If we accept a theory, we do so freely, after deliberation, that is, after the critical discussion of alternatives.

What we attempt to do in science is to describe and, as far as possible, explain what exists in nature.

Science has a unique attribute of openness

Experiments are not conducted which are independent of theory; that is, experiments are not done in a theoretical vacuum.

All scientific knowledge derives directly and exclusively from observations of phenomena; science is the meticulous, orderly and exhaustive gathering of facts.

Science has methods but does not have ***one method***. No scientific method follows a set, algorithmic procedure or a set of rules. Science also involves tacit, implicit, personal knowledge.

Scientists are completely disinterested and objective in their work.

The methods of science are characterized by attributes that are more in the realm of values than techniques

Scientists utilize only logic and objective appraisals of data.

Concepts and theories are produced by creative acts of abstraction and invention

Science is a neutral activity untainted by socio-historical and economic factors, producing value-free knowledge.

Doing science in different ways, depending on one's culture, is valid

Scientists rigorously attempt to eliminate human perspectives.

Much folklore and myth contains legitimate scientific knowledge.