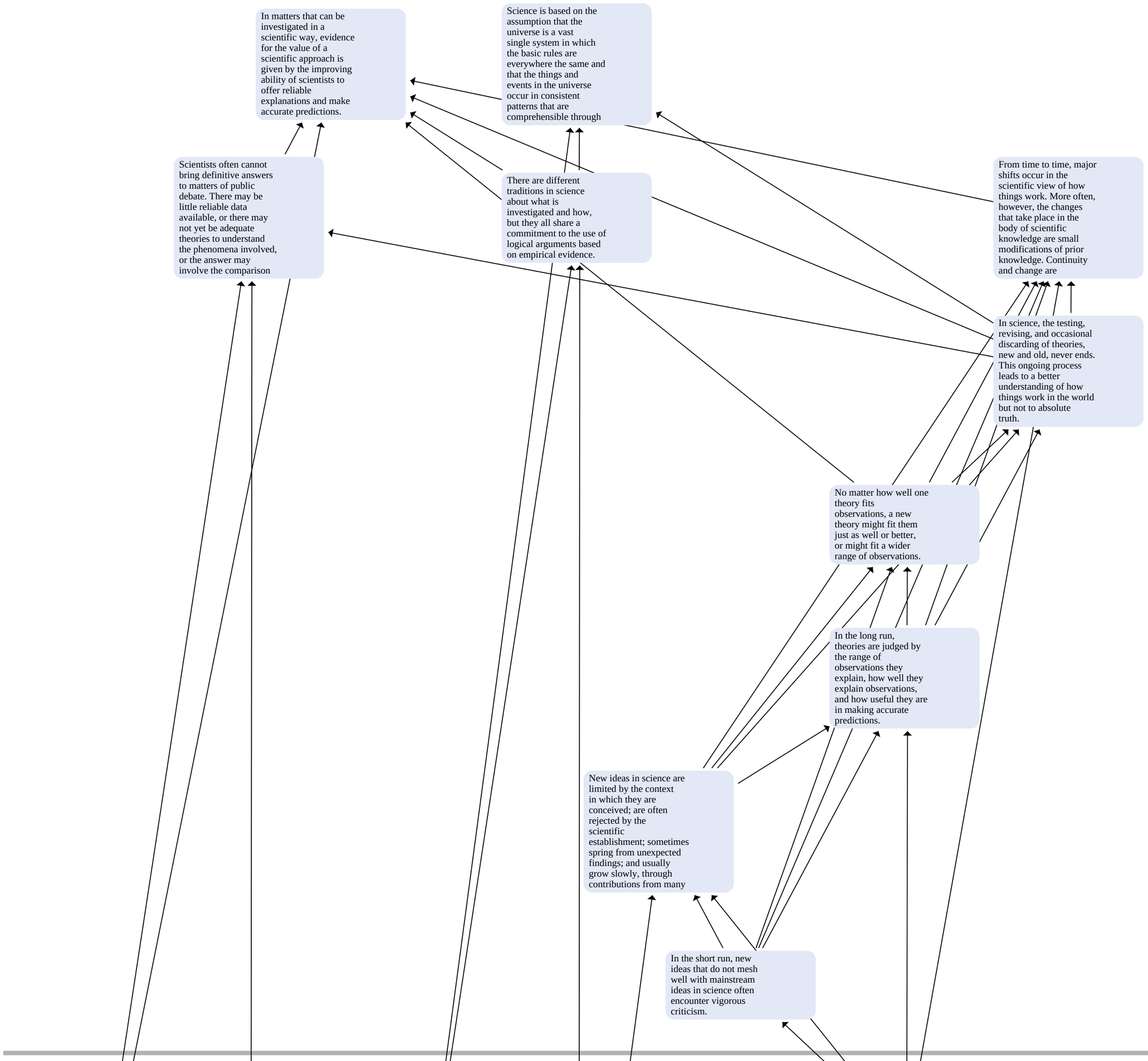
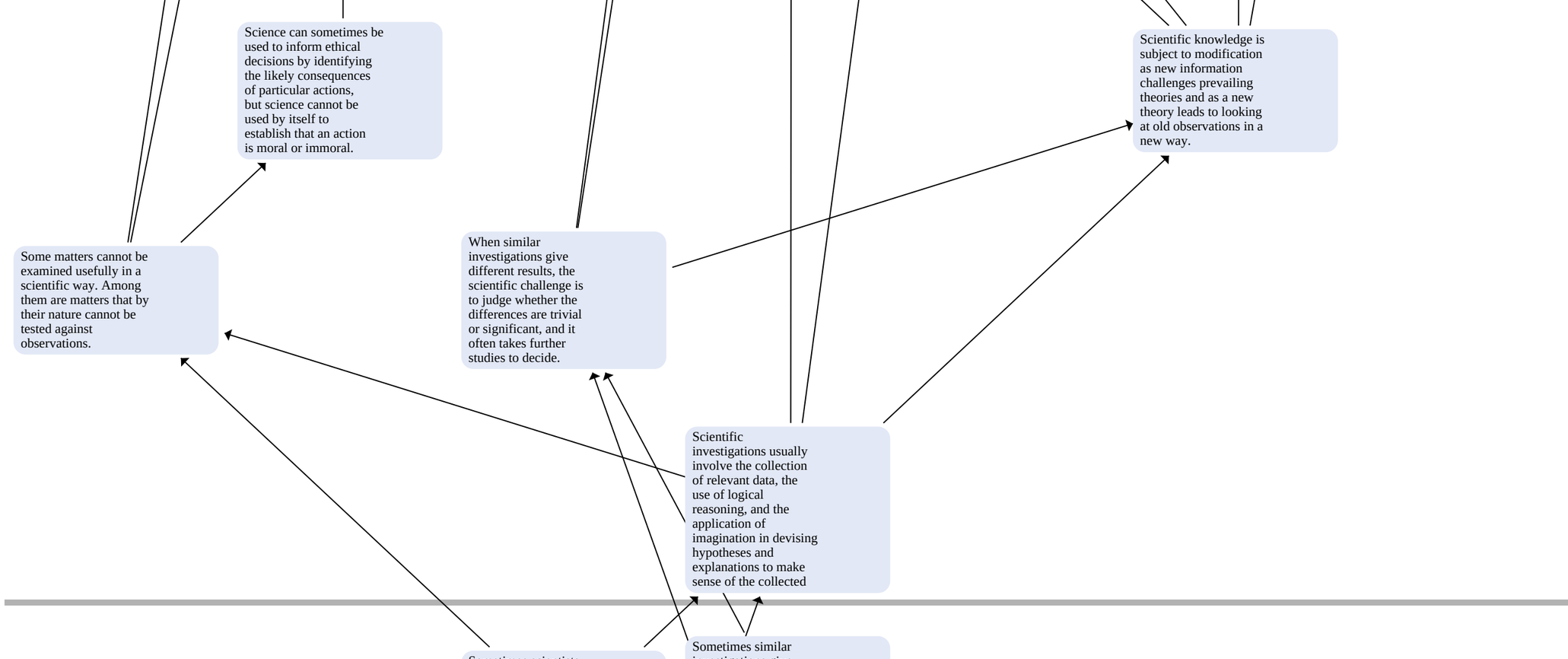
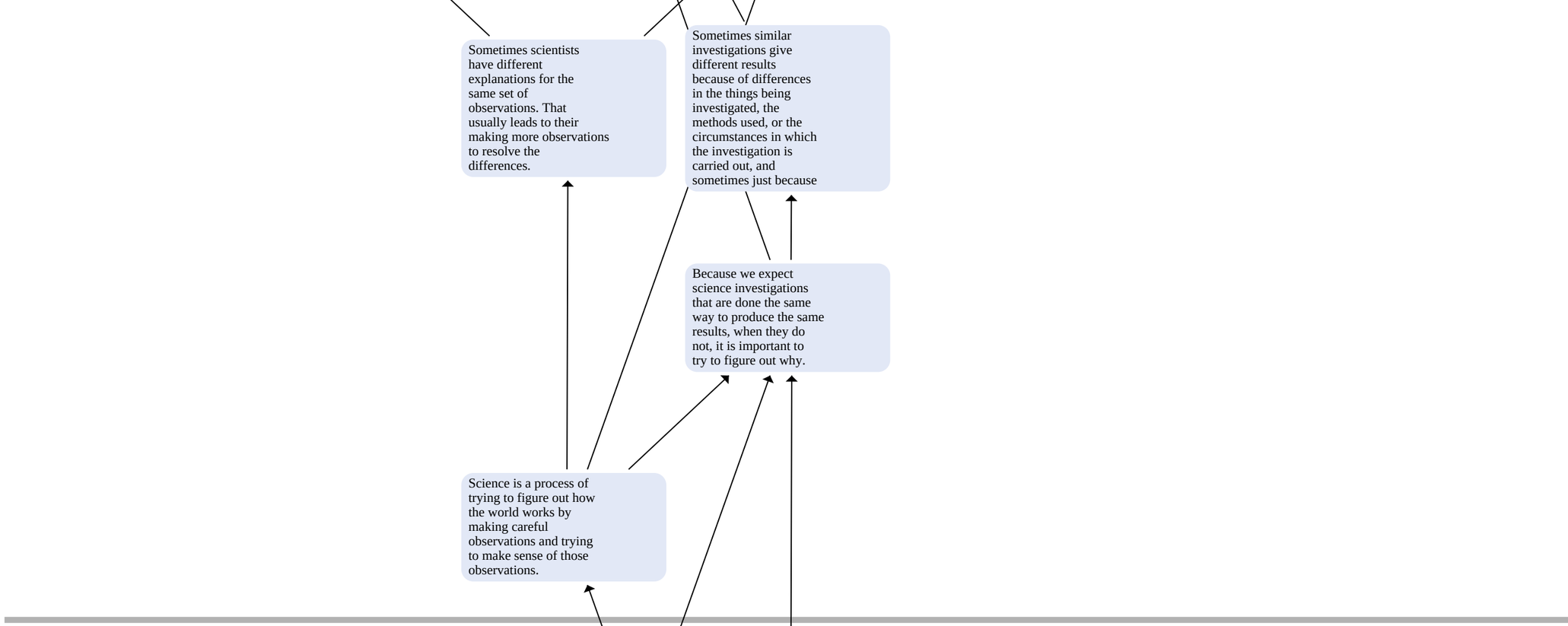
9-12


In matters that can be investigated in a scientific way, evidence for the value of a scientific approach is given by the improving ability of scientists to offer reliable explanations and make accurate predictions.
Science is based on the assumption that the universe is a vast single system in which the basic rules are everywhere the same and that the things and events in the universe occur in consistent patterns that are comprehensible through
Scientists often cannot bring definitive answers to matters of public debate. There may be little reliable data available, or there may not yet be adequate theories to understand the phenomena involved, or the answer may involve the comparison
There are different traditions in science about what is investigated and how, but they all share a commitment to the use of logical arguments based on empirical evidence.
From time to time, major shifts occur in the scientific view of how things work. More often, however, the changes that take place in the body of scientific knowledge are small modifications of prior knowledge. Continuity and change are
In science, the testing, revising, and occasional discarding of theories, new and old, never ends. This ongoing process leads to a better understanding of how things work in the world but not to absolute truth.
No matter how well one theory fits observations, a new theory might fit them just as well or better, or might fit a wider range of observations.
In the long run, theories are judged by the range of observations they explain, how well they explain observations, and how useful they are in making accurate predictions.
New ideas in science are limited by the context in which they are conceived; are often rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly, through contributions from many
In the short run, new ideas that do not mesh well with mainstream ideas in science often encounter vigorous criticism.

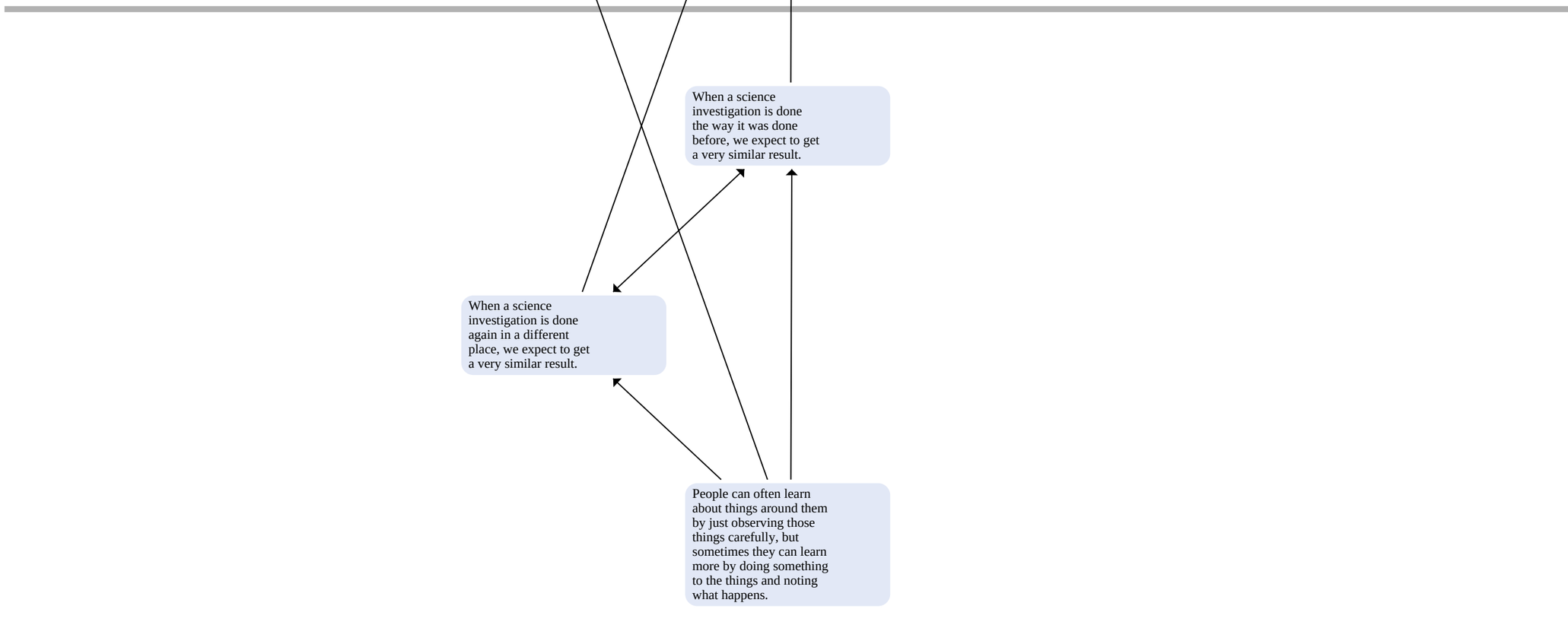
6-8


Science can sometimes be used to inform ethical decisions by identifying the likely consequences of particular actions, but science cannot be used by itself to establish that an action is moral or immoral.
Scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.
Some matters cannot be examined usefully in a scientific way. Among them are matters that by their nature cannot be tested against observations.
When similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, and it often takes further studies to decide.
Scientific investigations usually involve the collection of relevant data, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected

3-5


Sometimes scientists have different explanations for the same set of observations. That usually leads to their making more observations to resolve the differences.
Sometimes similar investigations give different results because of differences in the things being investigated, the methods used, or the circumstances in which the investigation is carried out, and sometimes just because
Because we expect science investigations that are done the same way to produce the same results, when they do not, it is important to try to figure out why.
Science is a process of trying to figure out how the world works by making careful observations and trying to make sense of those observations.

K-2


When a science investigation is done the way it was done before, we expect to get a very similar result.
When a science investigation is done again in a different place, we expect to get a very similar result.
People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.