

Testable Questions

Science begins with observing and asking questions about the natural world around us. Then it moves to a stage in which we begin to answer those questions by using a combination of further observation and experimentation. Scientists often have many questions that they would like to answer, but science is limited to answering questions that are testable in the natural world.

1. A question is likely to be testable if it uses question words like “whether,” “when,” “where,” “what,” “how many,” “how much,” and “how often,” rather than question words like “why.” *For example, the question, “How many fingers does a gorilla have on its right hand?” is easy to answer. Yet the question, “Why does a gorilla have four fingers on its right hand?” is not.*
2. If the specific issue to be tested is stated in your question and you list the specific items that will be involved, then your question is likely to be testable. *The question, “How much do gorillas eat?” is not easily tested. A more easily tested version of this question is, “How many pounds of bananas do adult male gorillas eat?”*
3. A question is likely to be testable if it describes the conditions under which to conduct the test. *An even better version of the gorilla and banana question would be, “How many pounds of bananas do the three adult male gorillas in the National Zoo eat in one week?” This question specifies the conditions that interest us: we are not asking how many pounds of bananas this gorilla would eat in the wild or during his lifetime.*
4. A question is likely to be testable if it describes the criteria that will be used to judge the outcome of the test. *Does a half-eaten banana count as having been eaten? How about a banana that is three-quarters eaten? Can you phrase this gorilla and banana question so that it is easier to test than the other questions above?*
5. A question is likely to be testable if it can be tested using available resources and procedures. *In the end, questions about gorillas and bananas, although they may be testable by some people in some parts of the world, are not testable questions for us in the classroom. All researchers (students and teachers alike) are limited by the resources that they have available.*

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