

**1001 QUESTIONS AND
ANSWERS ON PHYSICS OR
NATURAL PHILOSOPHY**

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1001 Questions and Answers on Physics Or Natural Philosophy by Anonymous

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QUESTIONS AND ANSWERS

ON

Physics or Natural Philosophy.

BY

A SCHOOLMASTER.

HINDS, HAYDEN & ELDREDGE, INC.
NEW YORK CITY

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PREFACE.

The marked success of the previous volumes of the 1001 series has led to the publication of this. It is hoped that it will be of aid to the buyer, and of profit to the publishers.

This is not one of the cases where "every conceivable question has been asked" and answered. In fact, it was equally difficult to determine what to ask, and what not to ask.

It was thought that it would be helpful, in the cases of some who study this book, to follow the order of some larger work which may be referred to for fuller information on some of the points that are herein necessarily briefly sketched. For this purpose, Avery's "School Physics" was chosen. As that book is generally used in the schools of this country, it is easily accessible to the students of this volume.

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CHAPTER I

MATTER.

A—DIVISIONS OF MATTER.

1. *What is Natural Philosophy or Physics ?*
Natural Philosophy or Physics is the branch of science that treats of matter, and of the forces operating upon it, and of the physical changes thereby produced.
2. *What is science ?*
Science is classified knowledge.
3. *What is matter ?*
Matter is anything that takes up room.
4. *Is this a real definition of matter ?*
It is not, for it simply tells something about matter instead of telling what matter really is.
5. *Why then is it given ?*
Because, in the present state of human knowledge, we can tell nothing of the real nature of matter and this does the next best thing; it enables us to distinguish matter from that which is not matter.
6. *Give some other "definition" of matter.*
Matter is anything that has weight.
7. *What are the divisions of matter ?*
Atoms, molecules, and masses.
8. *What is an atom ?*
The smallest quantity of matter that can enter into combination. It is generally a part of a molecule.
9. *How many kinds of atoms are there ?*
As many as there are "elements," of which we now know more than seventy. Others will probably be found.
10. *Can an atom be divided ?*
Atoms are considered indivisible, but the form or constitution of an atom is unknown. The atom is the chemical unit of matter.

11. *What is a molecule ?*
It is the smallest quantity of matter that can have a separate existence.
12. *How many kinds of molecules are there ?*
As many as there are kinds of matter. The nature of the molecule determines the nature of the substance of which it is a part.
13. *Can a molecule be divided ?*
Yes, but only by a chemical process. A molecule is the physical unit of matter.
14. *Give an illustration of a molecule.*
A particle of sugar so small that, if it is divided, none of its parts will be sugar.
15. *What are the parts of a molecule called ?*
Atoms.
16. *How many atoms are there in a molecule ?*
Chemistry teaches that in the case of a very few of the elements, the molecule consists of a single atom, but in almost every case, the molecule contains two or more atoms. The common sugar molecule has 45 atoms; the oxygen molecule has two atoms.
17. *What is a mass ?*
A body of matter consisting of two or more molecules; it is not necessarily very massive.
18. *Give an illustration of a "mass" of matter.*
A minute dust speck, a mountain or a planet.
19. *What is an element or an elementary substance ?*
A substance, all of the atoms of which are alike, *i. e.*, one composed of a single kind of atoms. Silver is an element because all of its atoms are silver atoms; it cannot by any known or conceivable process be "analyzed" or decomposed.
20. *What is a compound substance ?*
One that contains more than one kind of atoms. One of its molecules is like its other molecules, but each molecule contains more than one kind of atoms. Thus, a dew-drop is composed of many similar water molecules,