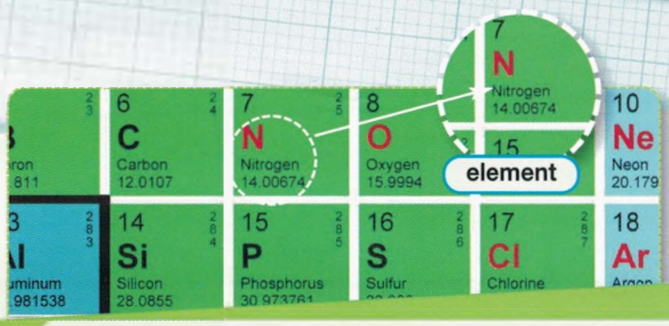
1 Matter

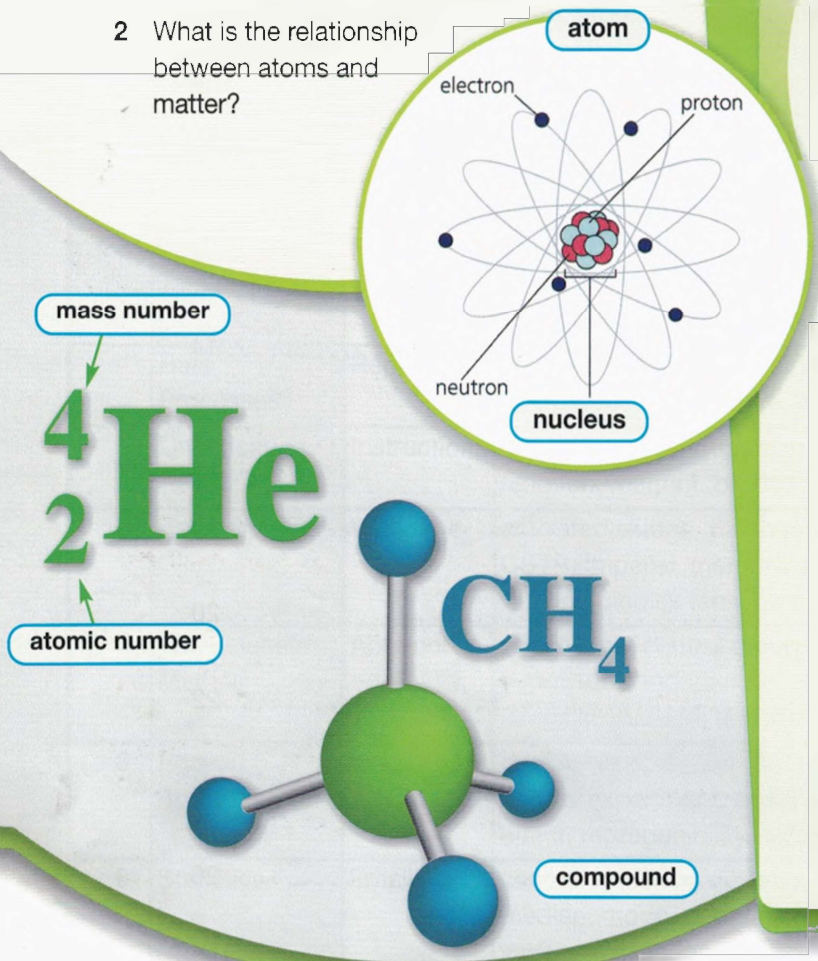


Get ready!

1 **Before you read the passage, talk about these questions.**

1 How are elements identified?

2 What is the relationship between atoms and matter?



Physical Science
MATTER

Atoms are the foundations of matter. They are larger than **subatomic particles**, and smaller than **molecules**. A molecule with two atoms is **diatomic**. An element consists of one type of atom. Two or more elements combine to form a **compound**. These different **elements** are identified by their **atomic numbers**.

Atoms also have a role in electricity. An **ion** is an atom with an electrical charge. If it has more **electrons**, it has a negative electrical charge. If it has more **protons**, it has a positive electrical charge. If a particle has no electrical charge, it is a **neutron**.

A **mass number** tells you the number of protons or neutrons in the **nucleus**. This determines which **isotope** an atom belongs to. All living things, including the human body, are made of atoms. Atoms make up elements and compounds, which are part of larger structures.

Reading

2 **Read the textbook excerpt. Then, choose the correct answers.**

1 What is the main idea of the chapter?

A the role of atoms
B types of elements
C uses of electrical charges
D the creation of a molecule

2 Which of the following does NOT have an electrical charge?

A an ion
B an electron
C a neutron
D a proton

3 Which of the following is the result of two or more elements?

A an atomic number
B subatomic particles
C an isotope
D a compound

Vocabulary

3 **Match the words or phrases (1-8) with the definitions (A-H).**

1 __ neutron
2 __ electron
3 __ molecule
4 __ compound
5 __ diatomic
6 __ element
7 __ mass number
8 __ atomic number

A a measure of the number of protons and neutrons in an atom
B a part of an atom with a negative electrical charge
C a measure of the number of protons in an atom
D a part of an atom with no electrical charge
E a basic substance made up of one particular type of atom
F the smallest unit of an element or compound
G containing two atoms
H two or more elements

6 Read the sentence pairs. Choose which word best fits each blank.

1 ion / proton

A A(n) _____ always has a positive electrical charge.

B A(n) _____ can have a positive or negative charge.

2 atom / subatomic particle

A A water molecule contains an oxygen _____.

B A proton is a type of _____.

3 isotope / nucleus

A The _____ is at the center of an atom.

B The scientist counted the number of neutrons in the _____.

5 🎧 Listen and read the textbook excerpt again. What is the difference between protons and electrons?

Listening

6 🎧 Listen to a conversation between two students. Mark the following statements as true (T) or false (F).

1 __ The man's notes contain an error.

2 __ The woman confuses atoms and molecules.

3 __ The students need to change their report.

7 🎧 Listen again and complete the conversation.

Student 1: 1 _____ _____? There were some mistakes in those notes. I just noticed this morning.

Student 2: Really? Oh, I didn't realize that.

Student 1: Yes, I'm sorry I didn't tell you earlier. I mixed up 2 _____ _____.

Student 2: I 3 _____ _____ any errors.

Student 1: Take another look. I wrote that protons have no electrical charge. And I put that neutrons are negative.

Student 2: Ah! That's what I 4 _____ _____ _____, too. Atoms can be confusing.

Student 1: Now I know better. The charges for ions are positive or negative. 5 _____ _____ protons and electrons.

Student 2: We'd better fix that in our report. It's 6 _____ _____ _____ it isn't due until tomorrow.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Are you ready ...?

I used ...

I just noticed ...

Student A: You are a student. Talk to Student B about:

- studying atoms
- electrical charges
- comparing types of atoms

Student B: You are a student. Talk to Student A about studying atoms.

Writing

9 Use the textbook excerpt and the conversation from Task 8 to fill out the evaluation.

Science Project Evaluation

Assignment: Identifying Atoms

Student's Name: _____

What score does this project receive (1-10)? _____

Please explain your scoring: _____

_____

_____

_____